Governor Brian Schweitzer

ECONOMIC GROWTH THRU ENERGY DEVELOPMENT

MONTANA

Overview of the Economy

MONTANA

Economy is Strong

- 8th fastest growing economy in U.S. last 5 years (... though spotty)
- Unemployment rates in 2005 lowest ever calculated (4.0%)
- Record number of jobs in 2005 (483,000)
- Average wage growth exceeded employment growth by 2.3% in 2005 (... upward pressure on economy)

MONTANA

Low Cost of Doing Business

- **4th least costly state in which to do business**
  (Milken Foundation)

MONTANA

Good Business Tax Situation

- 9th best tax structure for business in the U.S (Tax Foundation)
- 12th lowest state & local tax burden in the U.S. (Tax Foundation)
- No general sales tax on business

MONTANA

Workforce Quality & Availability

- Workforce training state $$$ available for specially tailored training first time ever, getting more
- Two or four year institutions in each of Montana's major employment & trade centers (24 total)
- Second best in the nation in % of population graduated from high school; over 24% of 25-and-older have a bachelor's degree
- Montana's engineering & business school grads heavily recruited for top-rated skills

MONTANA

Comparative Advantages

- Minerals
- Forest Products
- Agriculture
  - Bio-fuels
- Energy
  - Coal
  - Wind
  - Oil & Gas

- Ethanol
- Bio-diesel
- Coal mines
- Coal to gas
- Coal to liquid
- Coal to electricity
- Wind Farms
- Exploration
- Production
- Refineries

MONTANA

Vigorous Leadership

Governor Schweitzer

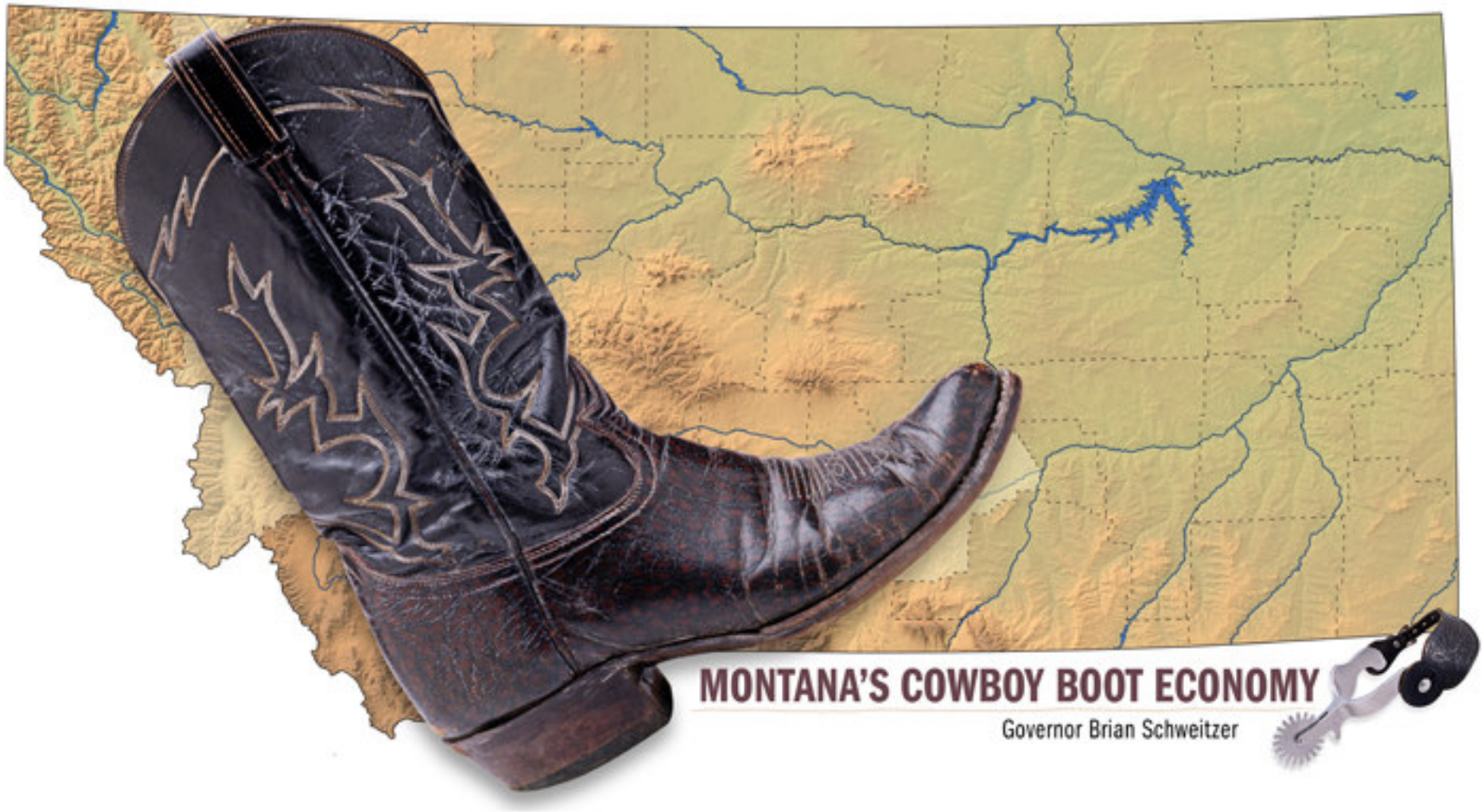
- Not a career politician – first elected office
- Successful international agri-businessman
- "Can do" attitude
- Intelligent & creative
- Will work with everyone
- Visionary leader

Governor Schweitzer's

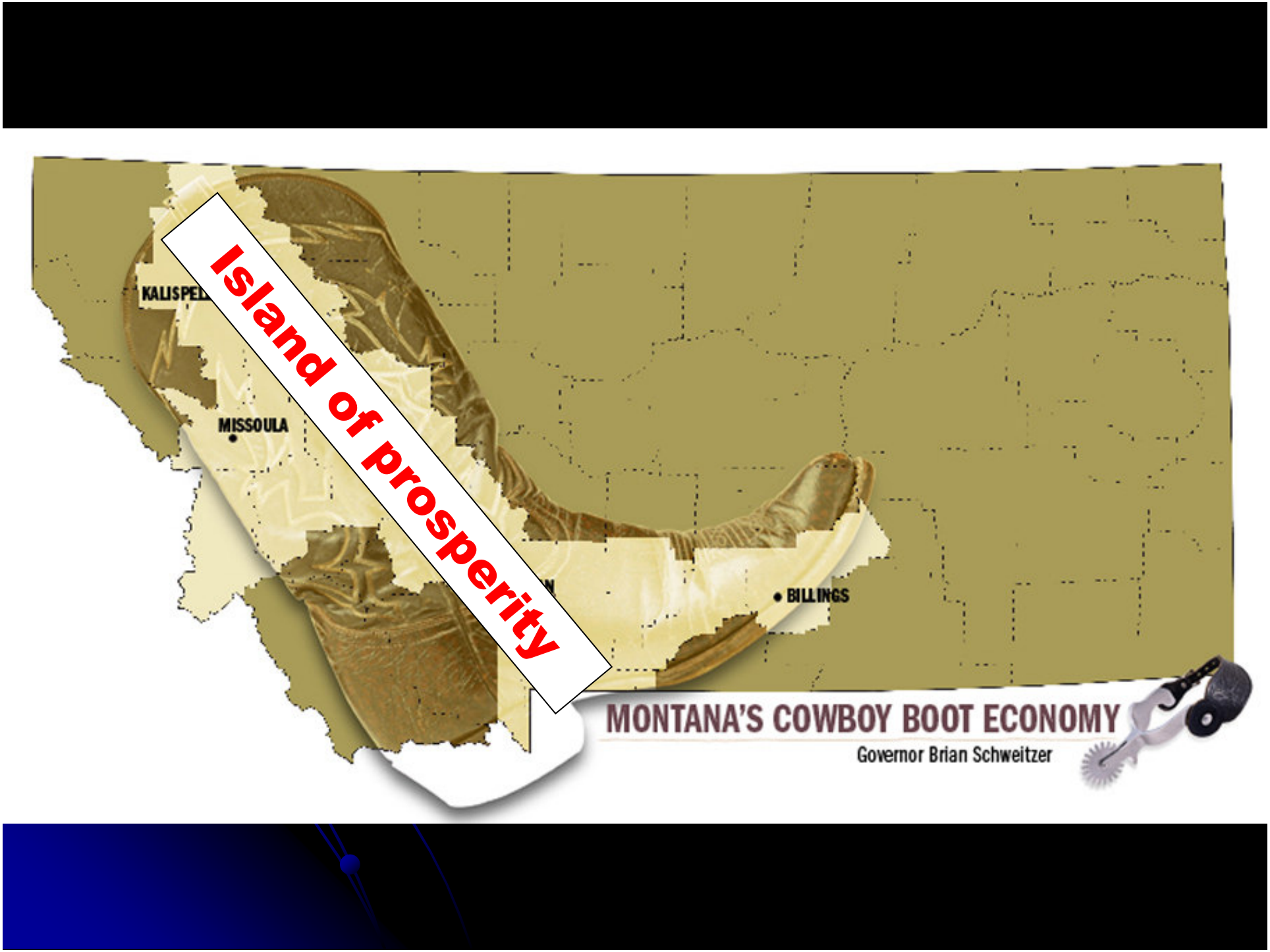
Economic Development "Vision" for Montana

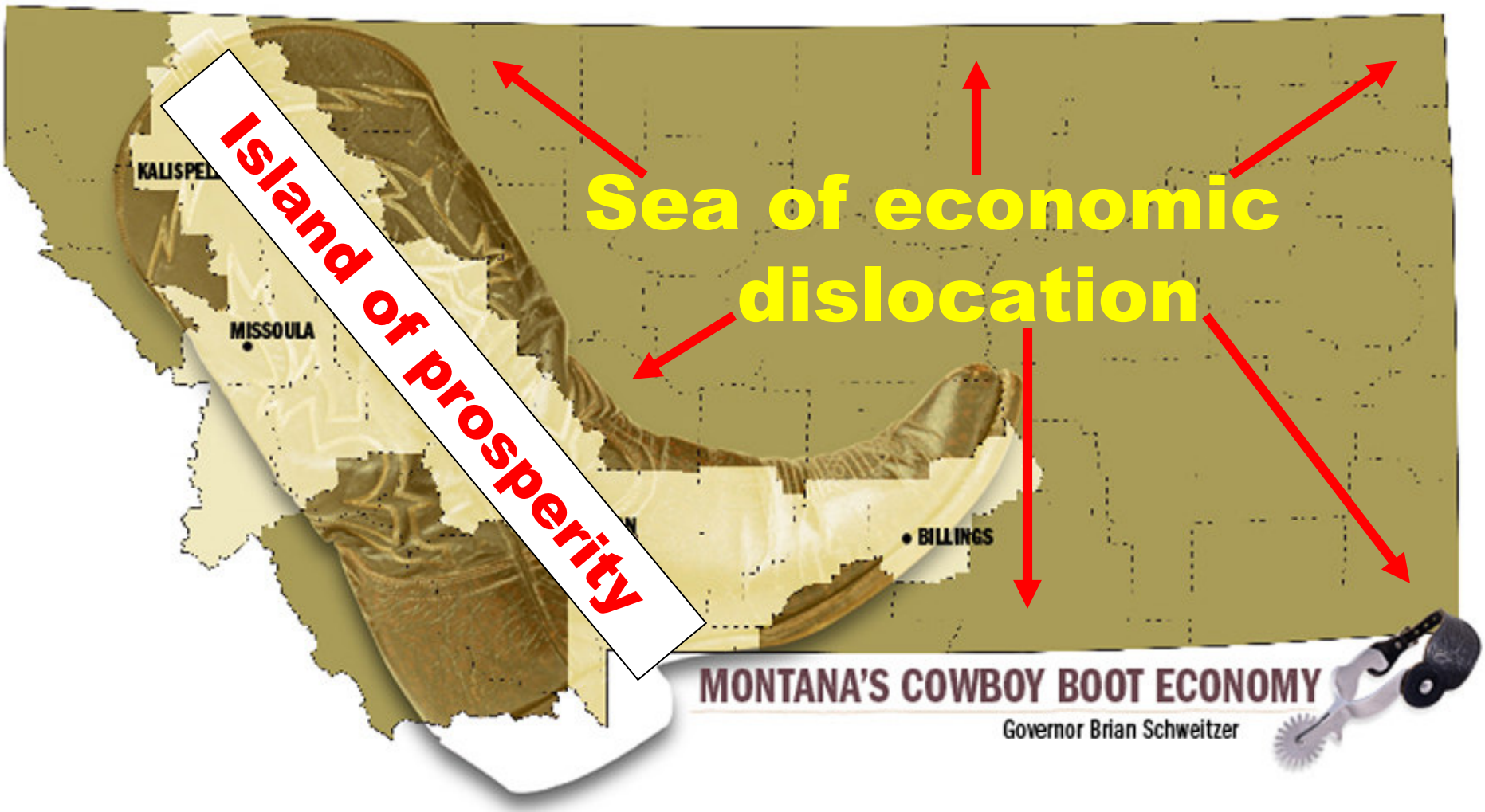
Governor Schweitzer's Economic Development Vision

- Strengthen & diversify state's economy
  - Resource sector
  - Manufacturing sector
  - Technology sector
  - Research & Developm't
  - High-end Service sector
  - Tourism sector
- Increase # of jobs available
- Increase quality of jobs
  - Higher salaries
  - Better benefits, including health insurance
- Geographically disperse jobs
  - In Indian Country
  - Inside "The Boot"
  - Outside "The Boot"

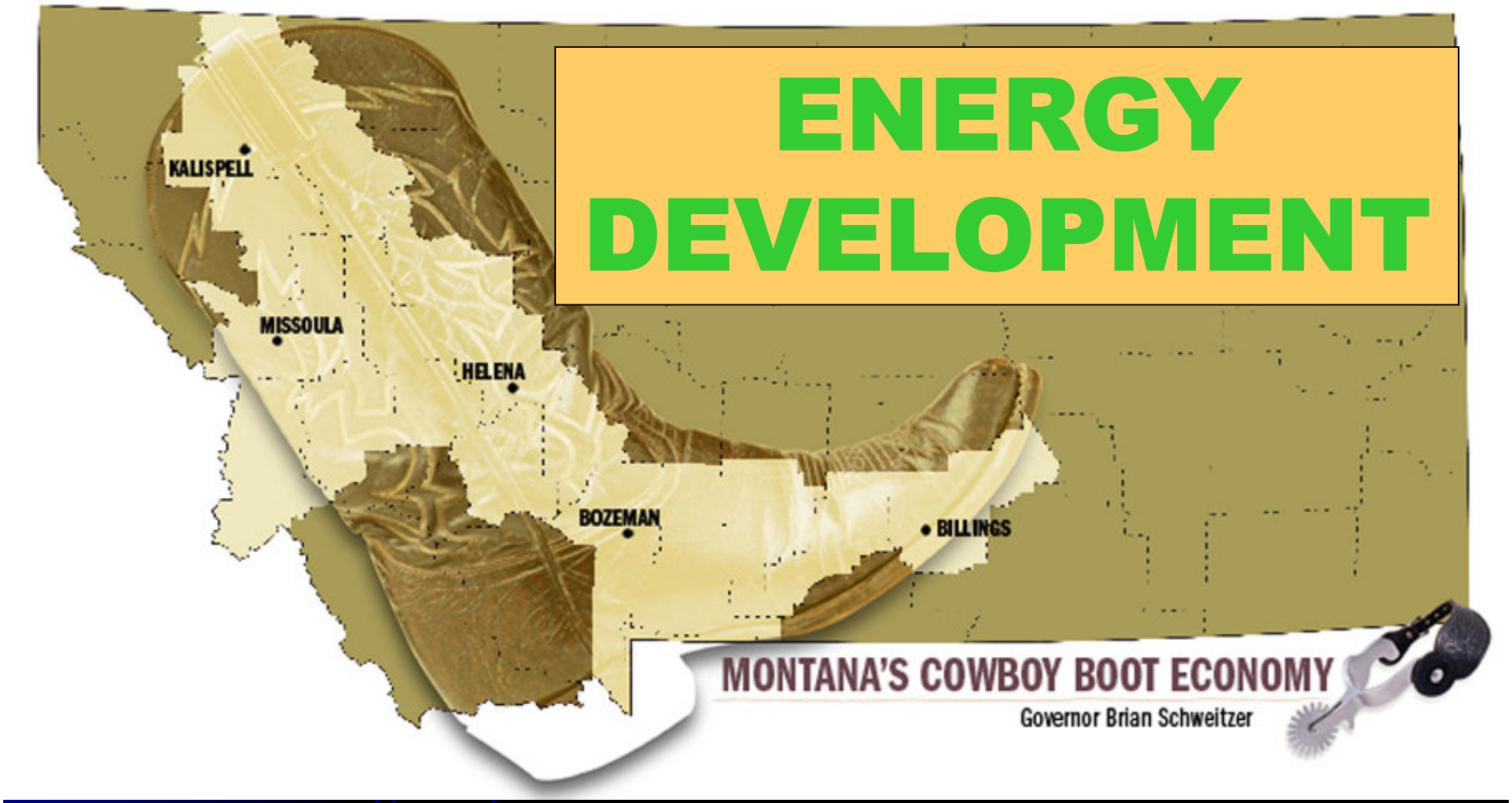

MONTANA'S COWBOY BOOT ECONOMY
Governor Brian Schweitzer


Mid-sized State
One of fastest growing states in America
KALISPELL
MISSOULA
HELENA
BOZEMAN
BILLINGS
MONTANA'S COWBOY BOOT ECONOMY
Governor Brian Schweitzer


Island of prosperity
MISSOULA
BILLINGS
MONTANA'S COWBOY BOOT ECONOMY
Governor Brian Schweitzer


Island of prosperity
Sea of economic dislocation
MISSOULA
BILLINGS
MONTANA'S COWBOY BOOT ECONOMY
Governor Brian Schweitzer

"OUTSIDE the BOOT" POTENTIAL

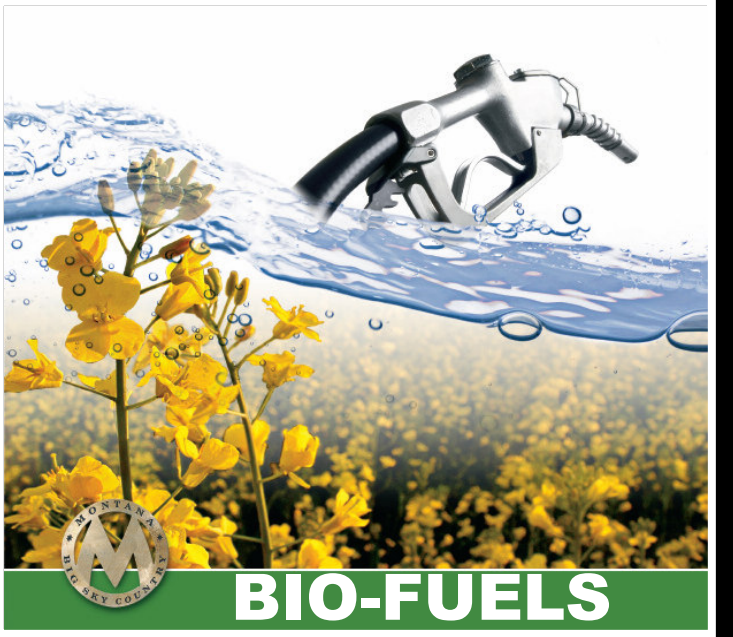


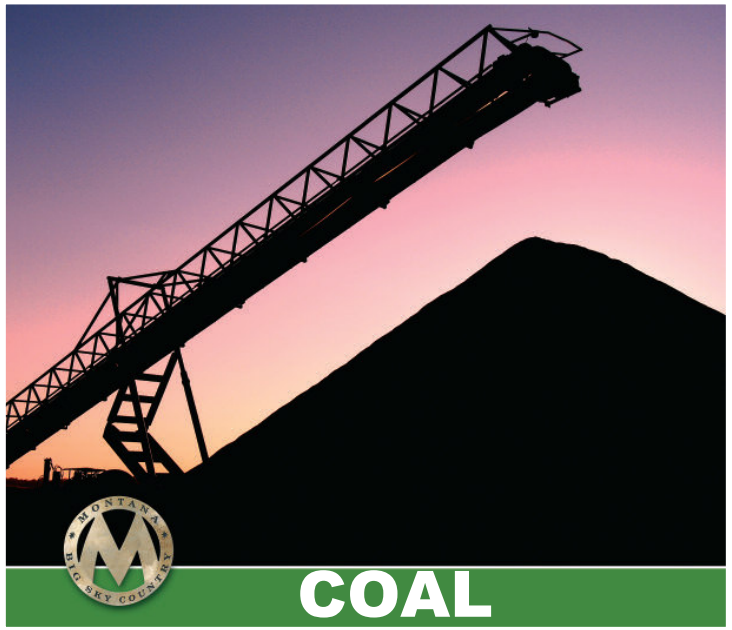
MONTANA

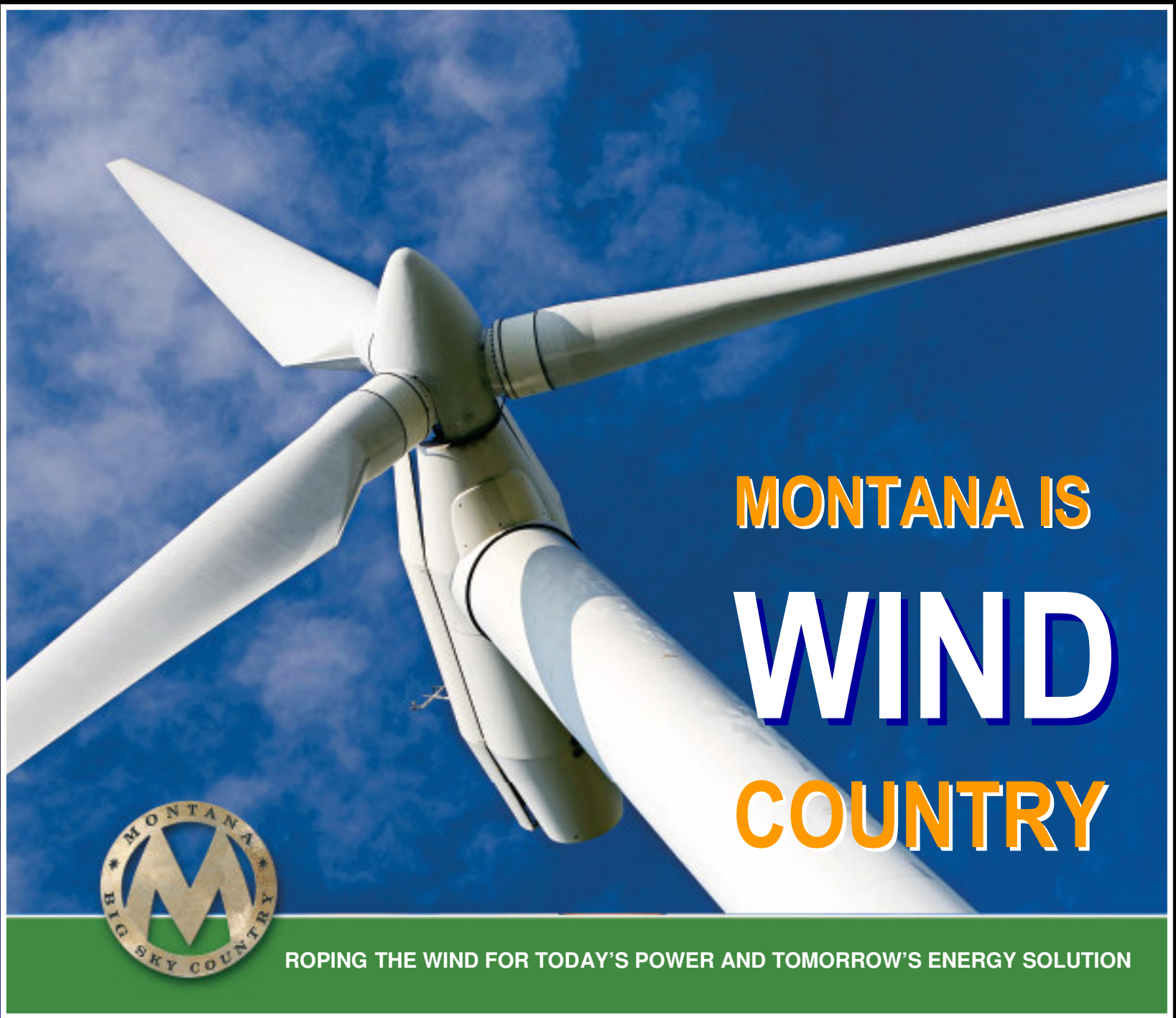
Schweitzer Energy Policy for "Outside the Boot"

- Take advantage of all of our energy advantages
- Do it right – quality jobs with a quality way of life
- "Clean & Green" for ourselves and to meet market demand

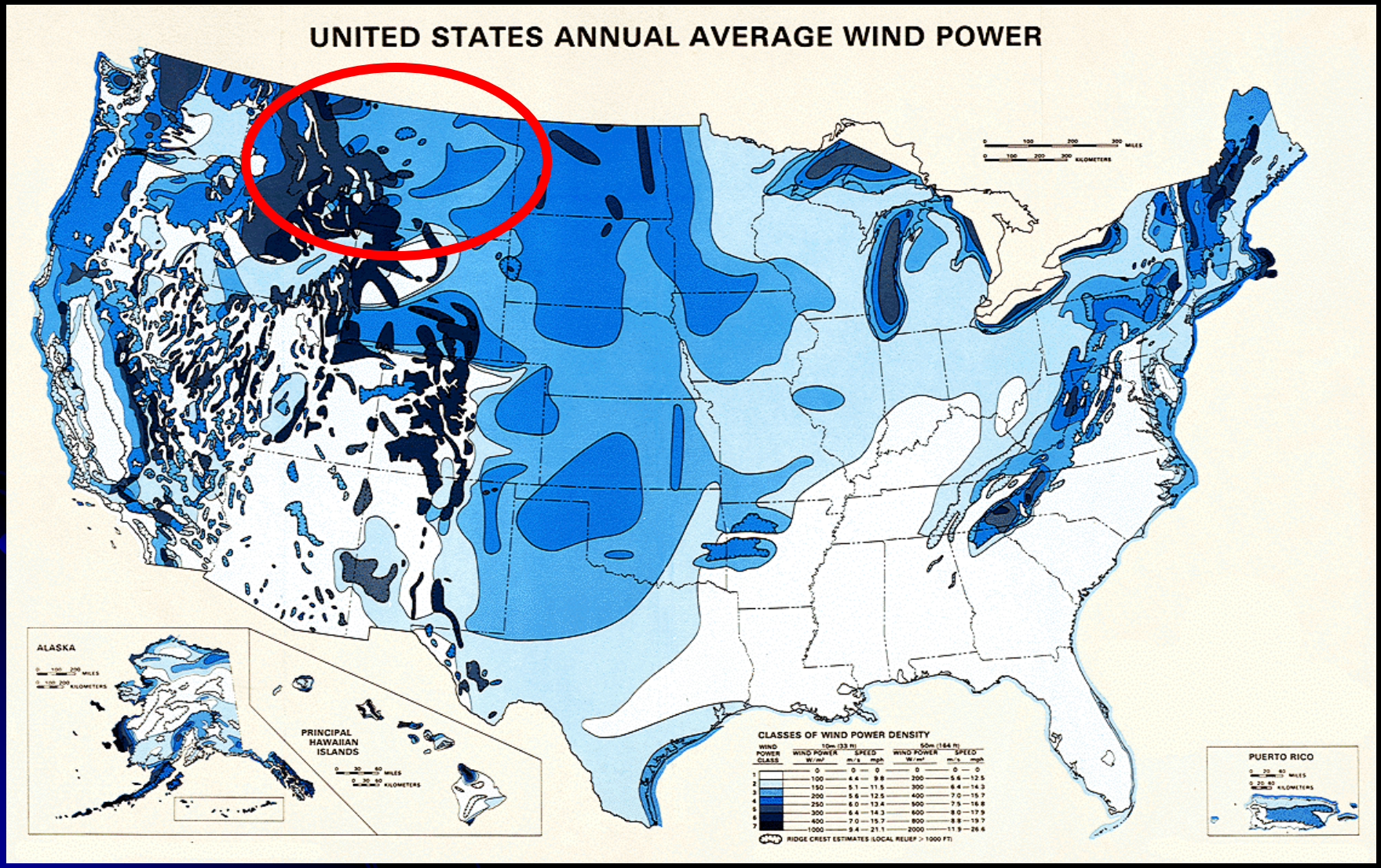
We will develop all of these.



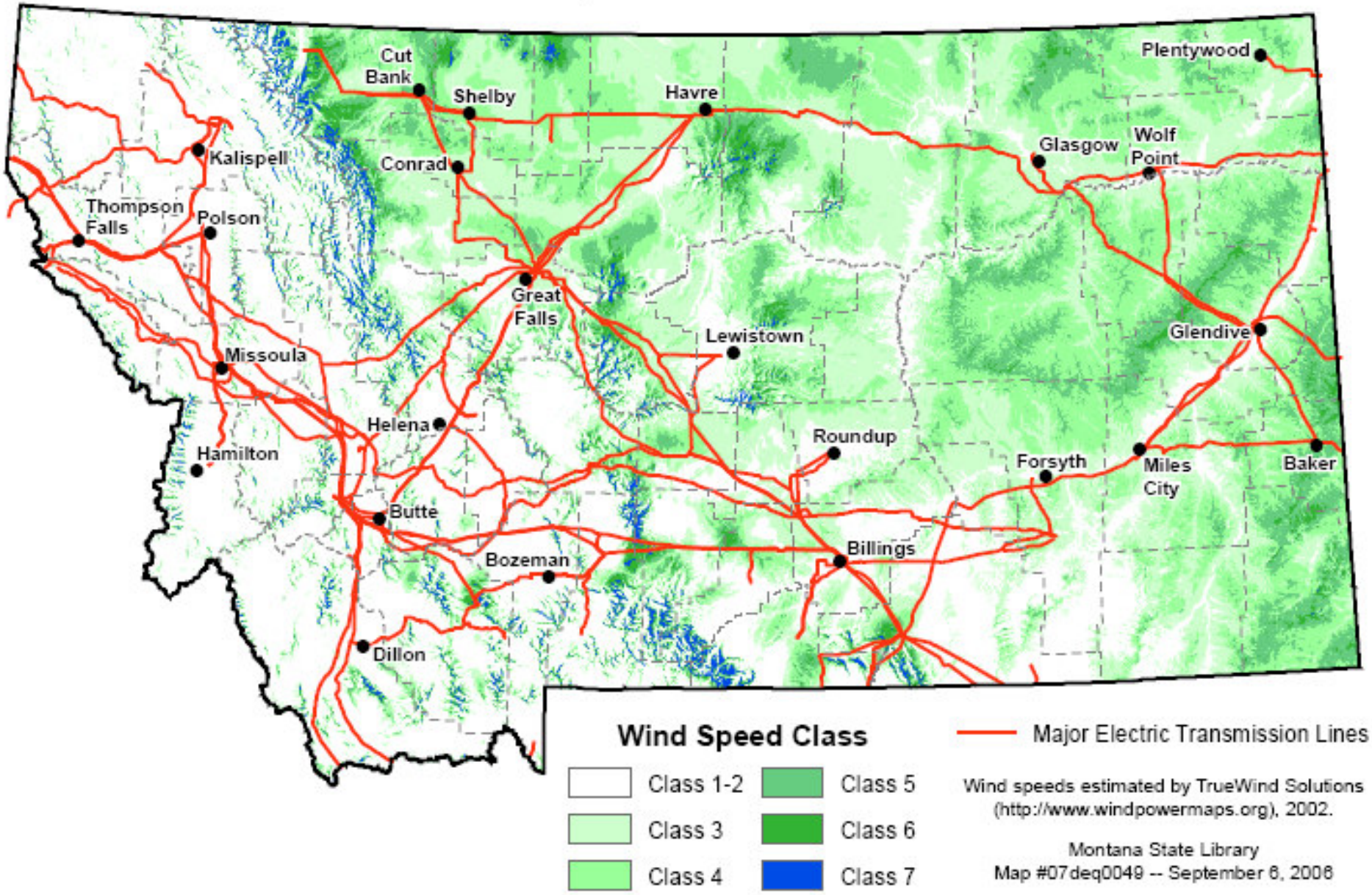



MONTANA IS
WIND
COUNTRY
MONTANA
BIG SKY COUNTRY
ROPING THE WIND FOR TODAY'S POWER AND TOMORROW'S ENERGY SOLUTION

US Annual Average Wind Power



Wind Power Speed at 50 Meters



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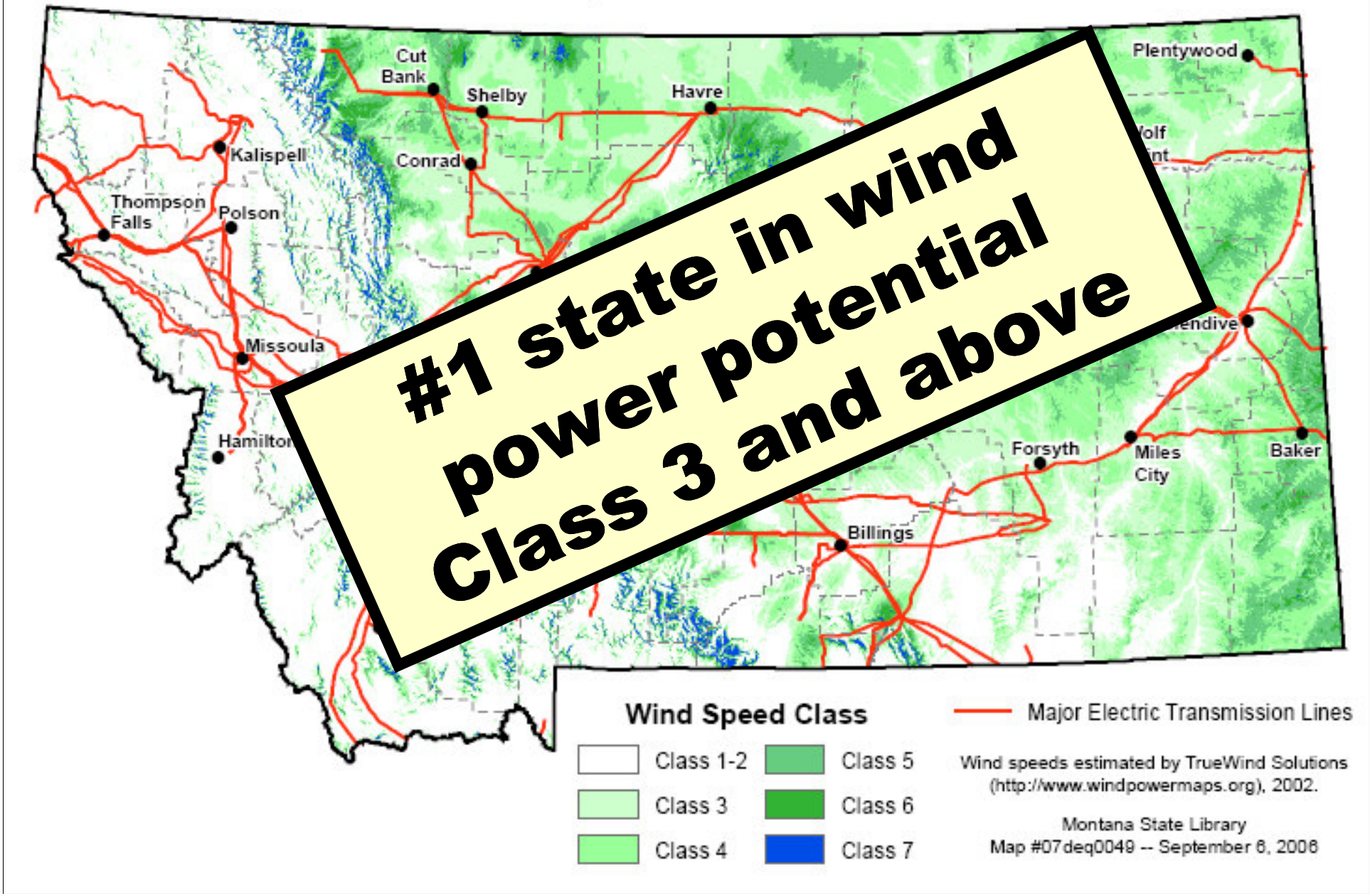
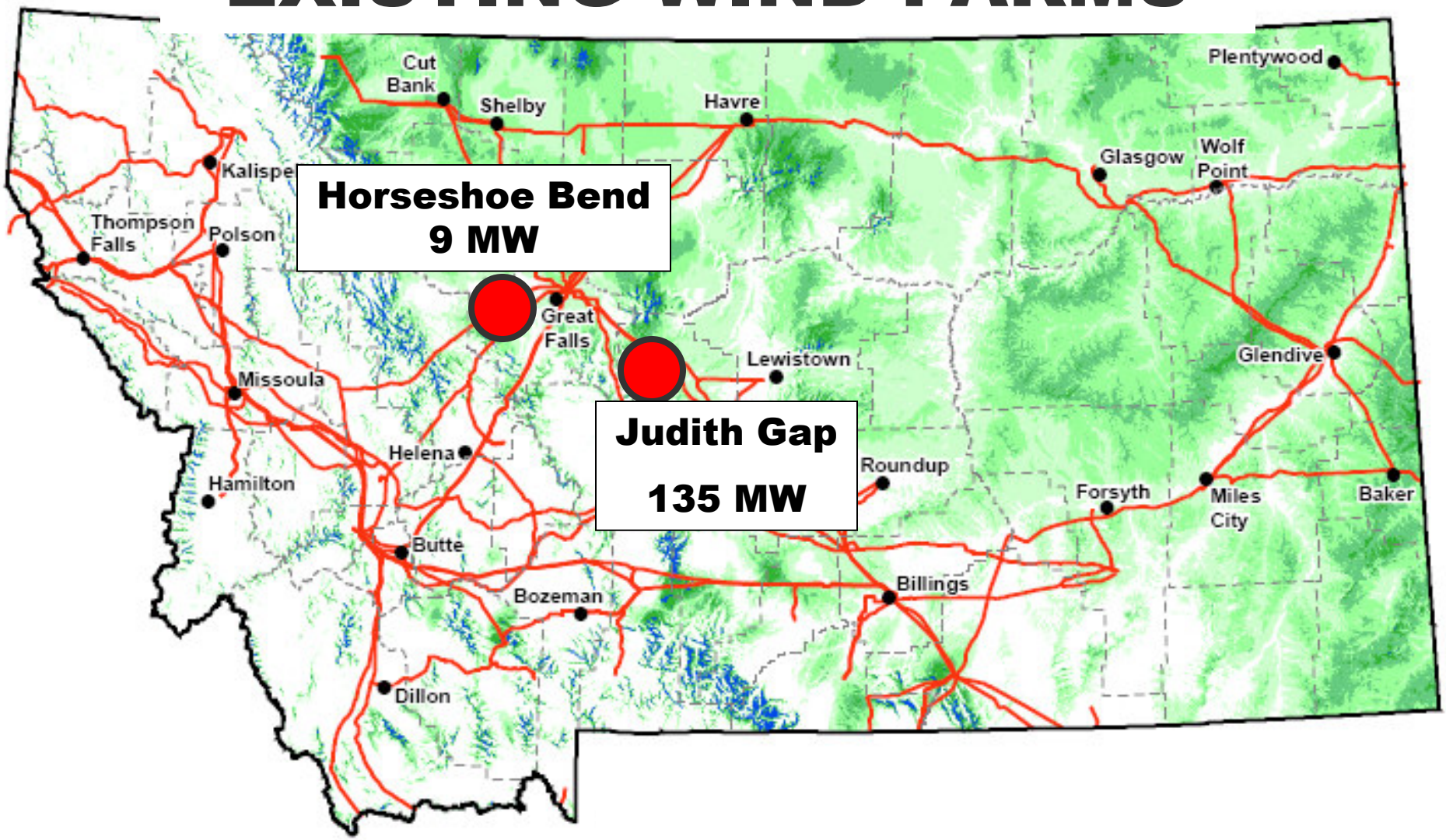


Wind Power Speed at 50 Meters

EXISTING WIND FARMS



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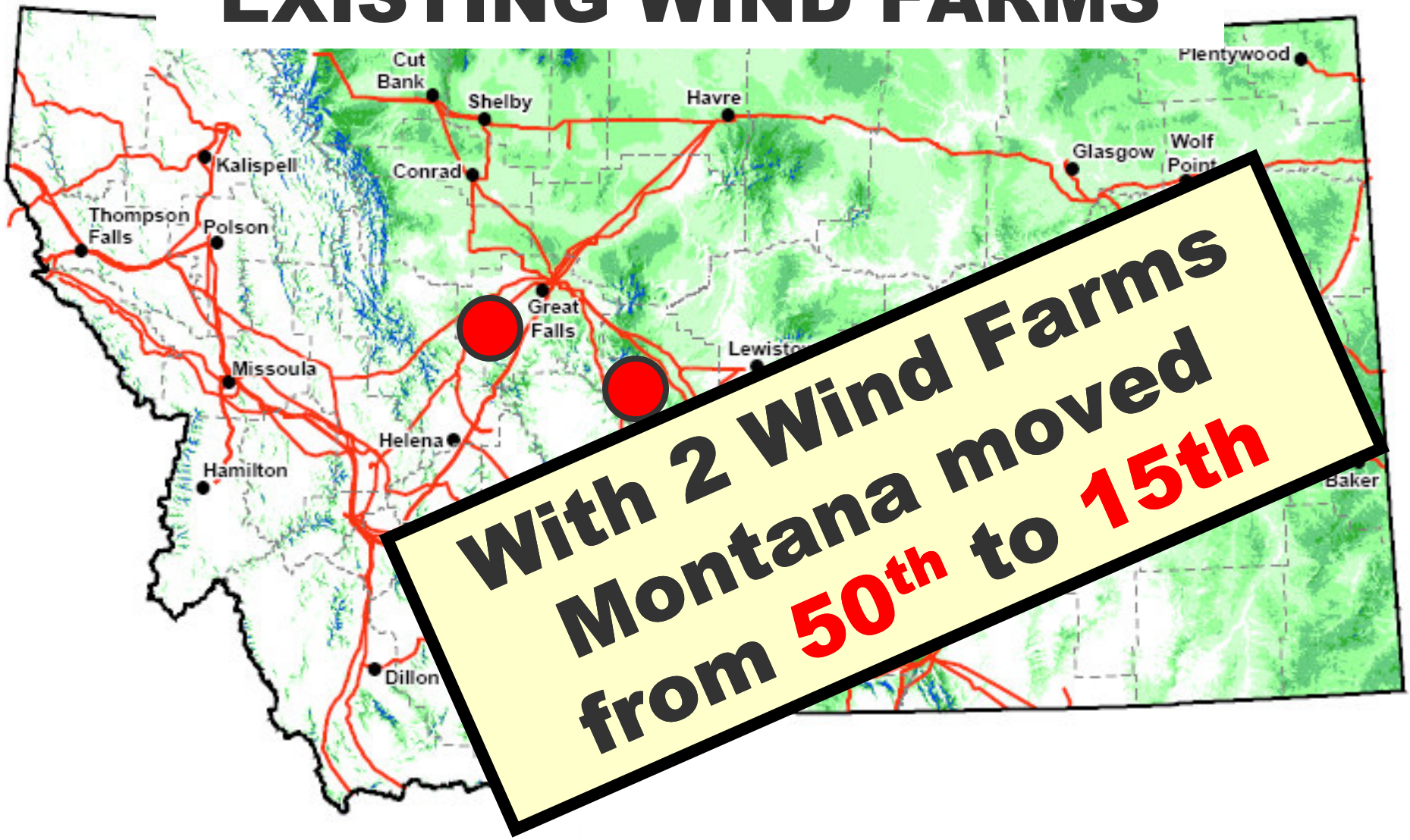
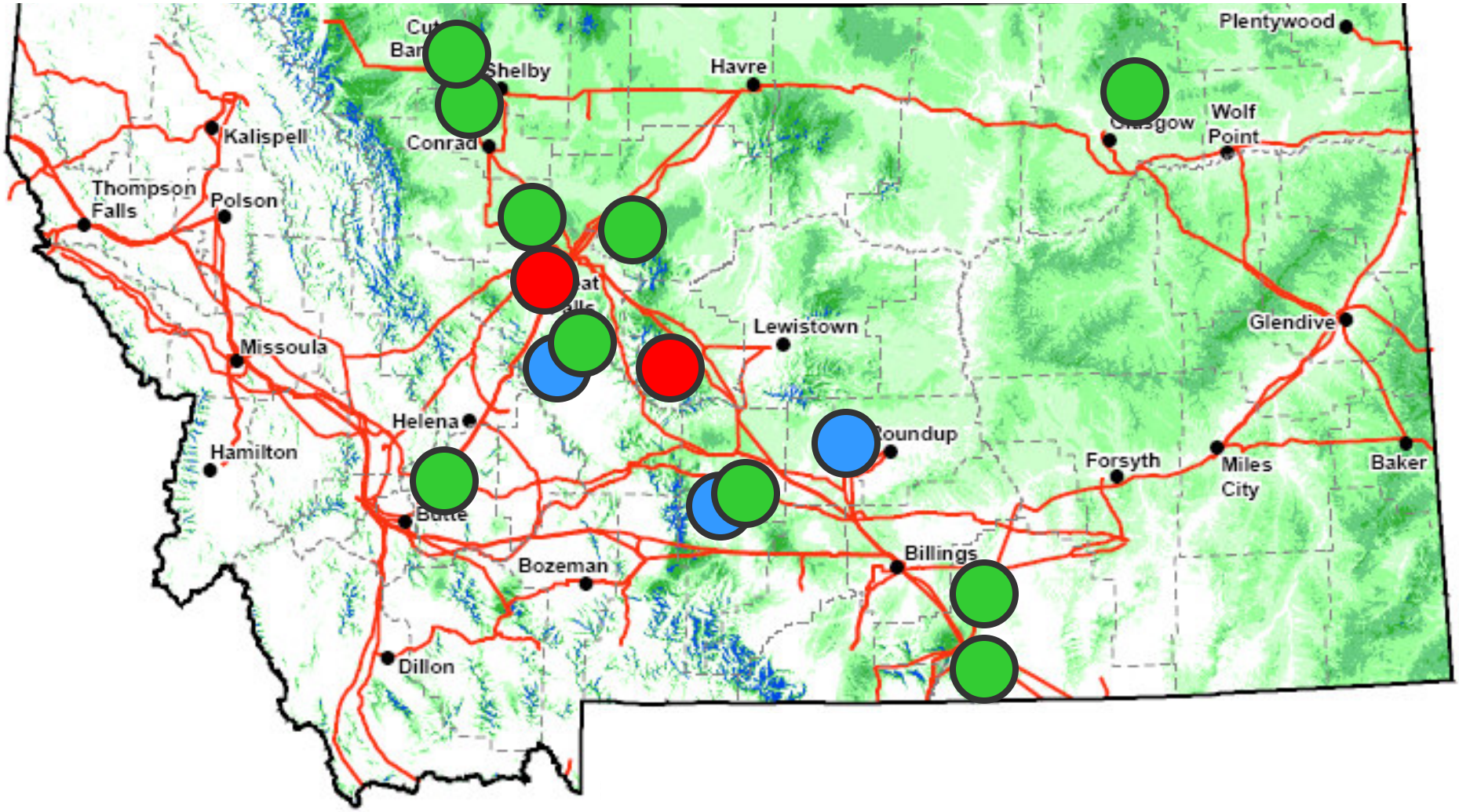


Wind Power Speed at 50 Meters

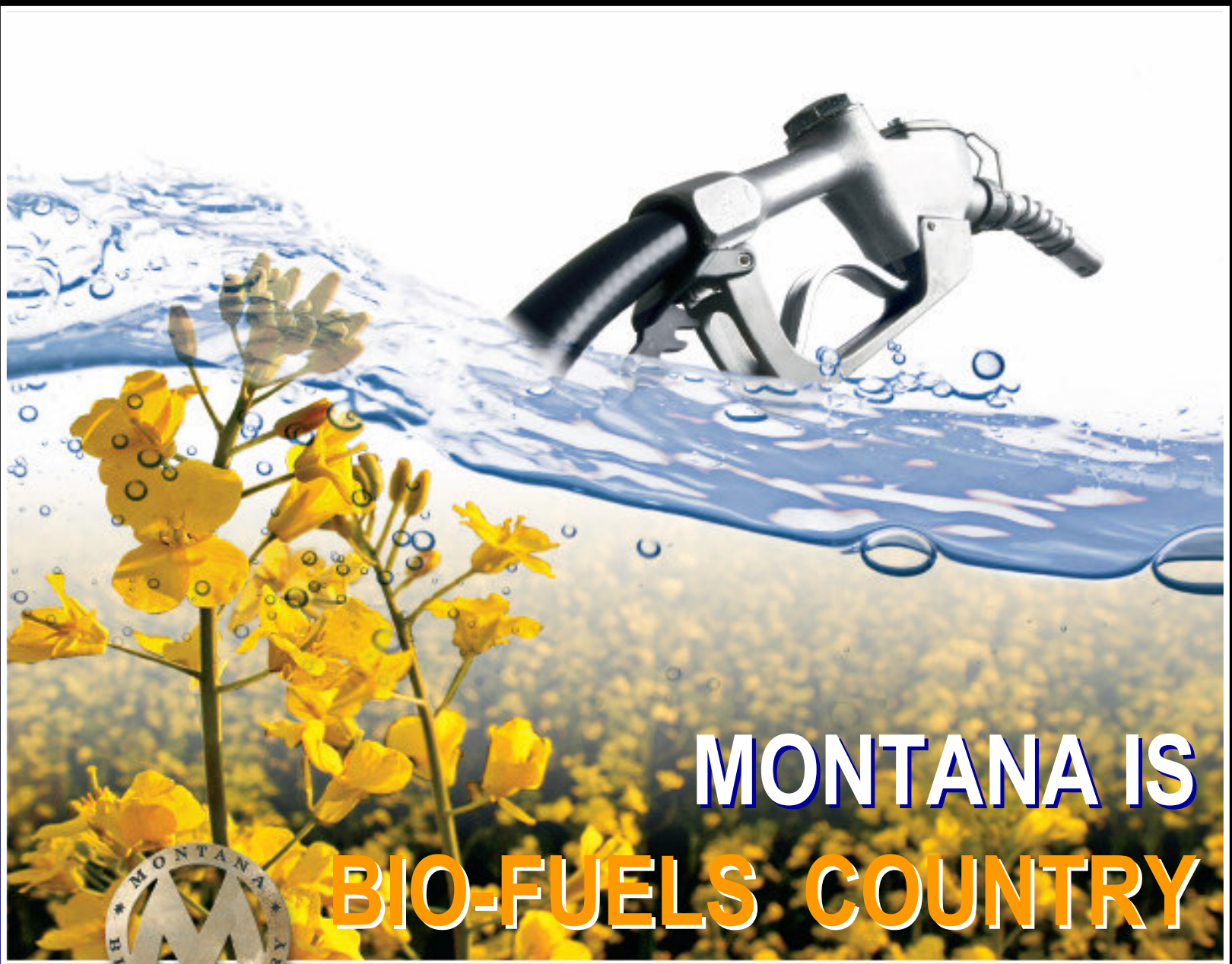
WIND FARM ACTIVITY



EXISTING PROPOSED PLANNED

Montana's Commitment to Wind Power Development

- Montana adopted a state renewable energy portfolio standard in 2005 requiring 15% renewable power by 2015
- Montana has seven (7) tax incentives for the development of wind power
- Sen. Baucus passes Clean & Renewable Energy Bonds (CREBs) incentive for local & tribal government wind power


MONTANA IS
BIO-FUELS COUNTRY
MONTANA
BIG SKY COUNTRY
DEVELOPING BIOMASS FUELS FOR TOMORROW'S ENERGY

Montana's Assets for Bio-Fuels Development

- Total land area of 145,000 sq. mi. – 4th largest state
- 16.5 million acres of crop land suitable for growing grain and/or seed crops for use in ethanol & bio-diesel
- 19 million acres of non-reserved forest land available for ethanol from bio-mass

Montana's Commitment to Bio-Fuels Development

- **Montana has two state level production incentives:**

  (i) reduction in state motor fuels tax collected on ethanol blends at specially marked pumps

  (ii) 30 cent per gallon incentive to the ethanol producer using Montana agricultural products

- **10% ethanol blending requirement when in state production reaches 40 million gallons/year**

- **Bio-diesel tax credits on production & fueling facilities**

Economic Impacts of a 50 Million Gal/Yr Ethanol Plant

- 40-50 - permanent jobs
- $3 million in annual additional income
- $1 million in additional annual tax revenues
- $140 million to the local economy during plant construction
- Jobs created would be high paying compared with the average MT job

(Source: Mt DEQ study, Jan 2005)

Proposed Ethanol Plants

- ***Montana Fuel and Feed ethanol plant and feed yard*, Miles City.**
- ***Rocky Mountain Ethanol* in Hardin.**
- ***Rocky Boy's Ethanol Plant* - near Laredo**
- ***Fort Belknap Tribe Ethanol Plant***
- ***HTM & Associates* – Conrad**
- ***Montana Ethanol Project* – Great Falls**
- ***Diamond Bee* – Billings**
- ***Great Northern Development Corp.* – Glasgow, Fort Peck**
- ***Montana Specialty Foods* – Shelby**
- ***EthaNext-Montana Microbial Products* -- Butte**

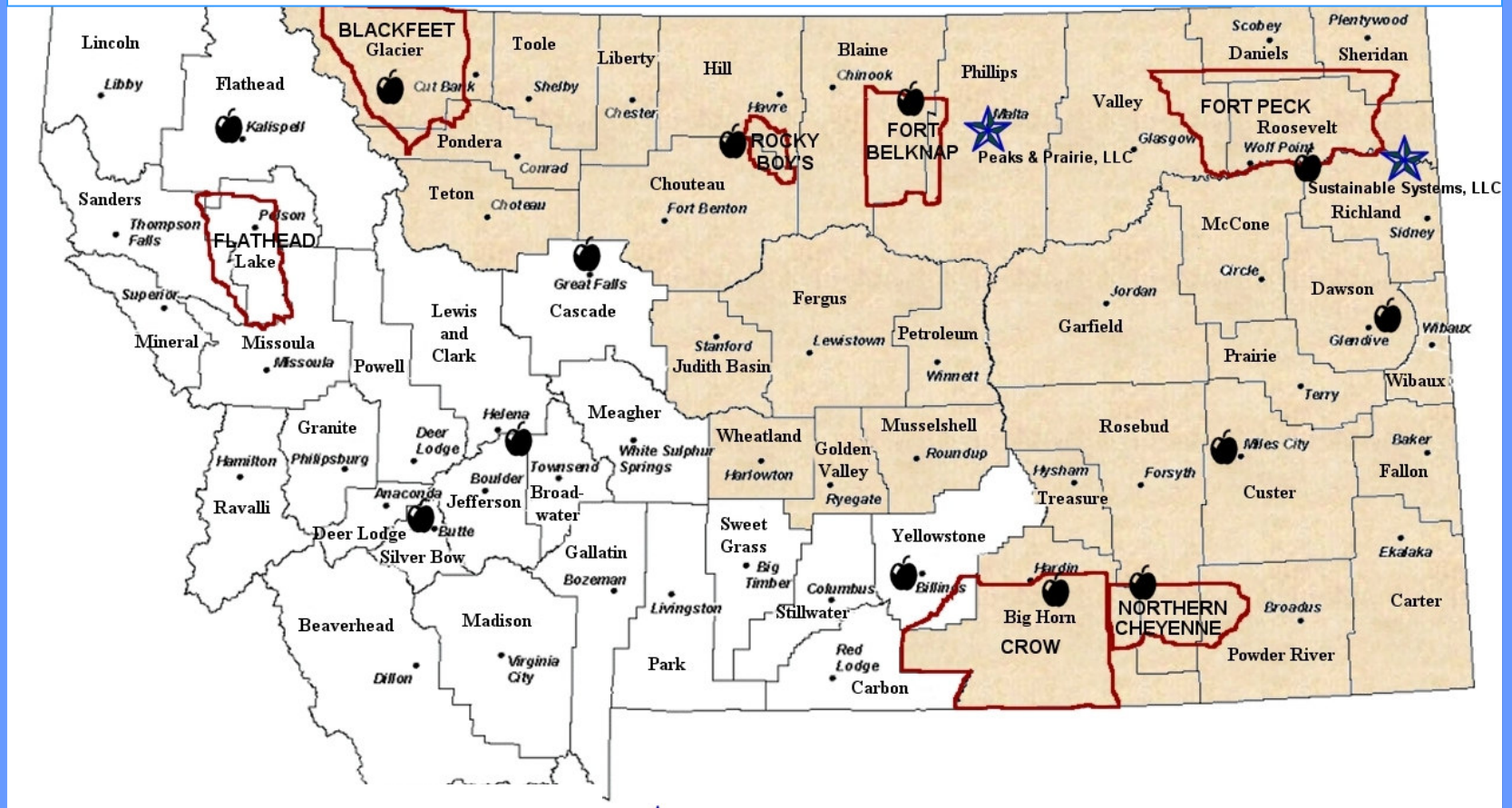
Proposed Bio-Diesel Plants

- ***Sustainable Systems*** -- **Culbertson**
- ***Peaks & Prairies Plant*** – **Malta**
- ***Basin Creek Power*** – **Butte**
- ***Blue Sun Bio-diesel*** – **Gallatin County**
- ***Green Energy LLC*** – **Havre**
- ***Park County Bio-diesel Co-op*** – **Livingston**
- ***Agri-Green Bio-diesel*** – **Kalispell**
- ***Yellowstone Bio-diesel Co-op*** – **Billings**
- ***Freedom Energy, Inc.*** – **Bozeman**
- ***Earl-Fisher Bio-fuels LLC*** -- **Chester**

Workforce Innovation for Regional Economic Development

$15 million, 3 year federal workforce development grant to build a regional economy from bio-fuels development

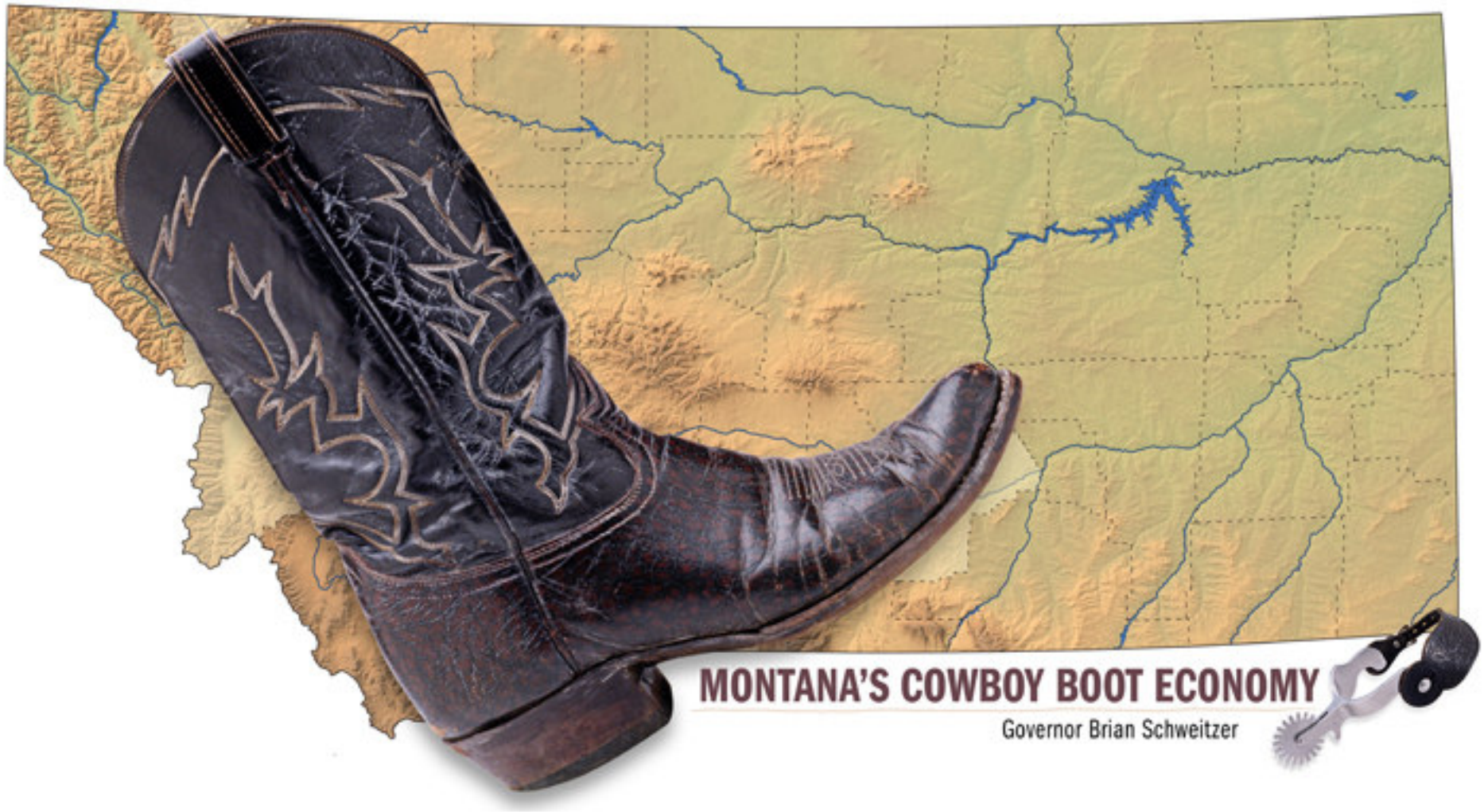
LOOK FAMILIAR?



WIRED REGION

- Existing Crushing & Refining Plants
- Two-Year Colleges
- Tribal Land
- Balance of State
- WIRED Region

LOOK FAMILIAR?



Governor Schweitzer's Vision:

Shifting the region's agricultural base from being a predominately cash crop economy to one that is boosted by agricultural processing will enable the region to become economically viable and to compete in global markets.


MONTANA IS
COAL COUNTRY
Turning our coal advantage into jobs & growth

Montana Coal Reserves

120 Billion Tons

28% Nation's Coal

8% World's Coal

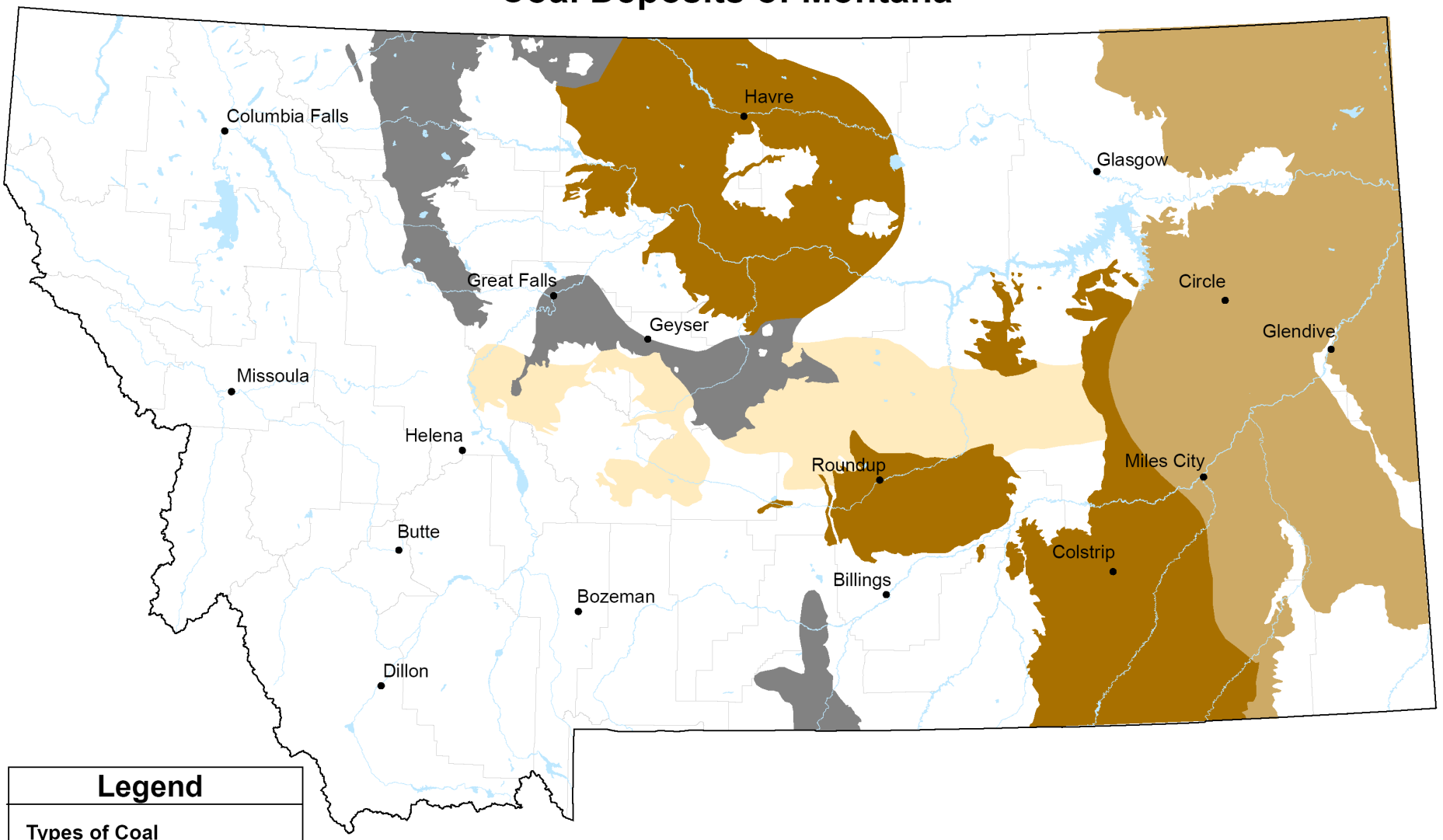
Types of Montana Coal

Bituminous Coal

Sub-bituminous Coal

Lignite Coal

Coal Deposits of Montana



Legend

Types of Coal

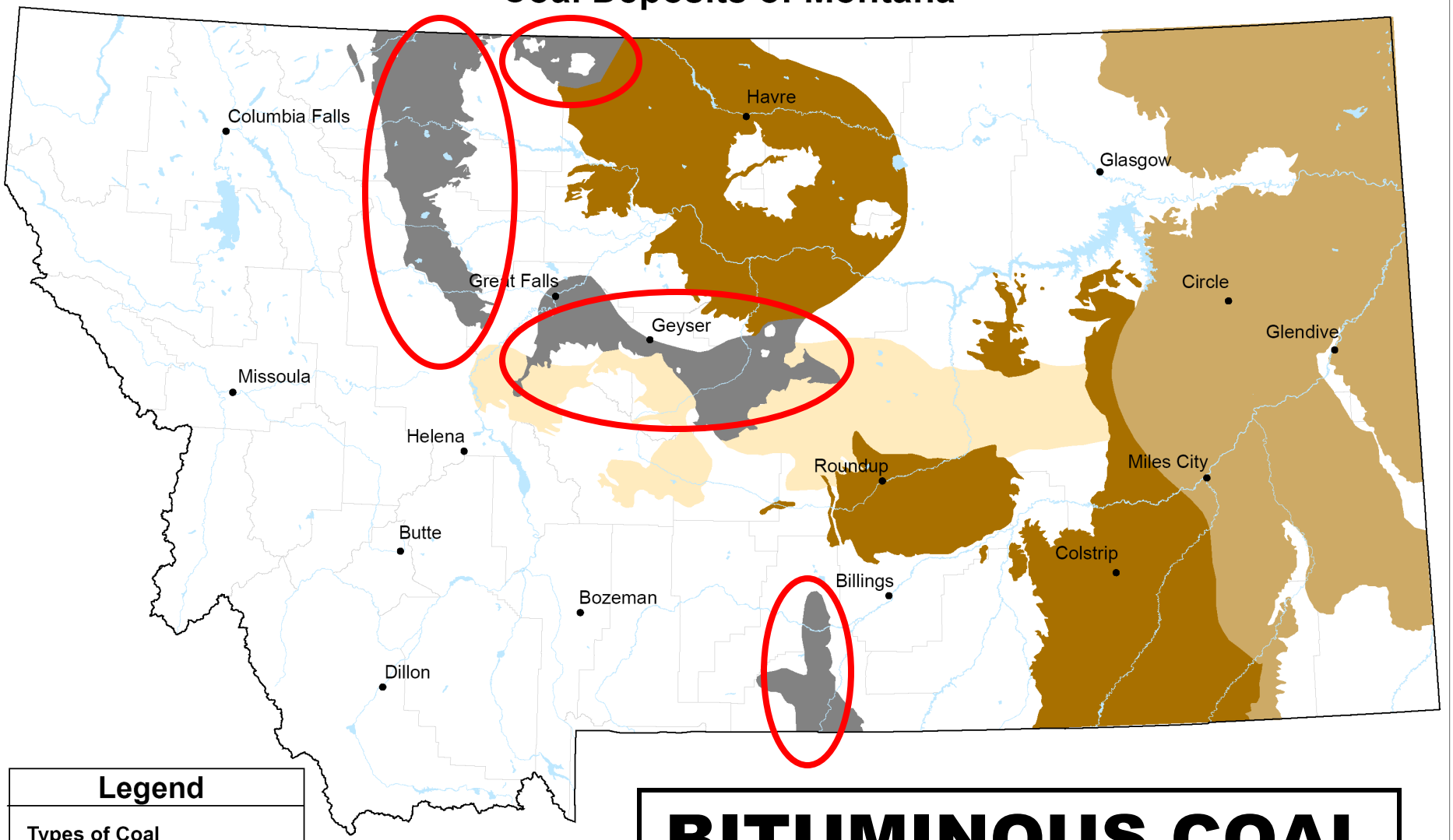
- Bituminous
- Sub-bituminous
- Lignite
- Oil-shale
- Major Rivers and Lakes

0 25 50 100 150 200 Miles

Montana Department of Environmental Quality

Sources of Information:

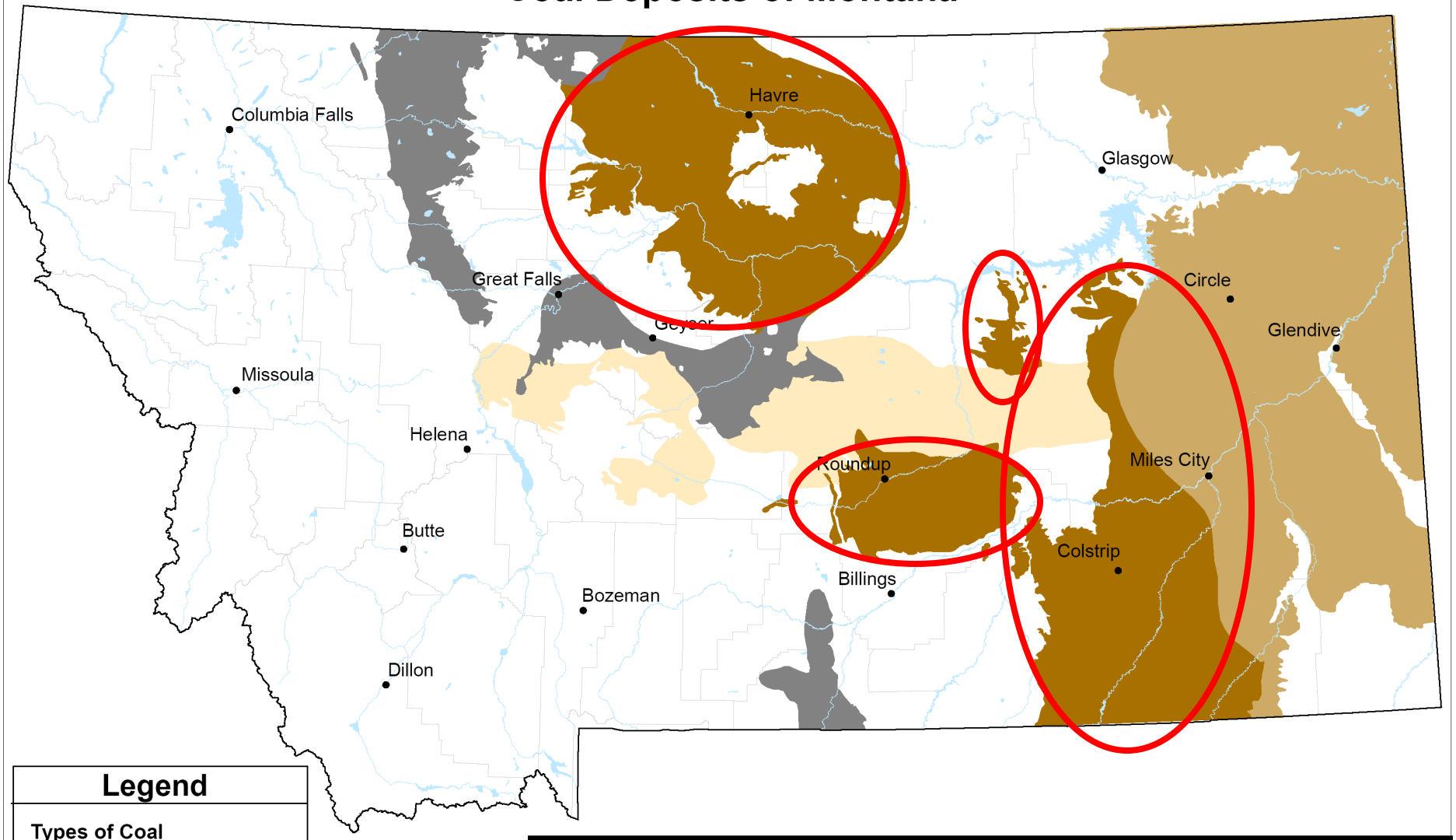
Coal Deposits of Montana



Montana Department of Environmental Quality

Sources of Information:
Coal deposits - Montana State University, 1974

Coal Deposits of Montana



Legend

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0 25 50 100 150 200 Miles

SUB-BITUMINOUS COAL

Montana Department of Environmental Quality

Sources of Information:

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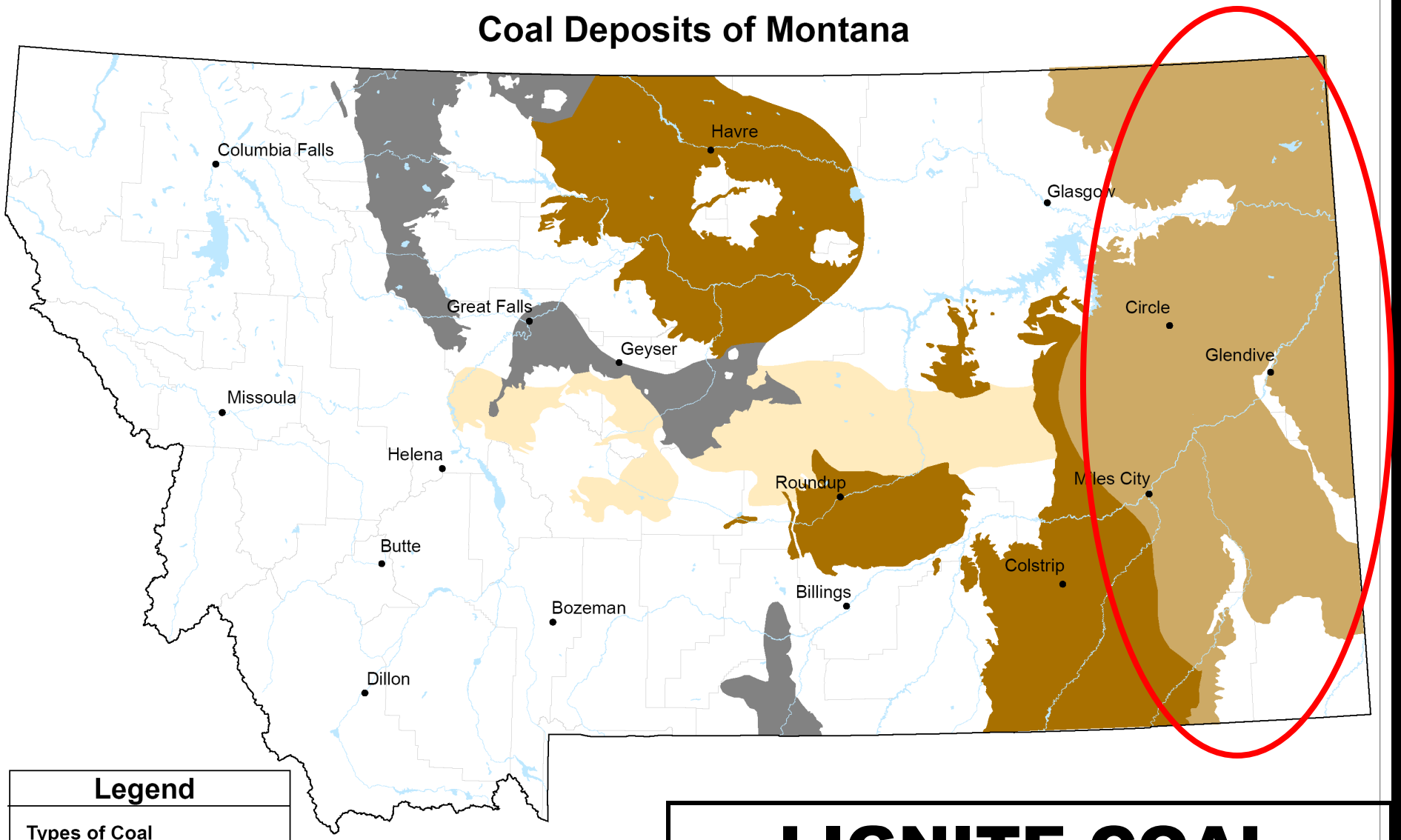

Legend

Types of Coal

- Bituminous
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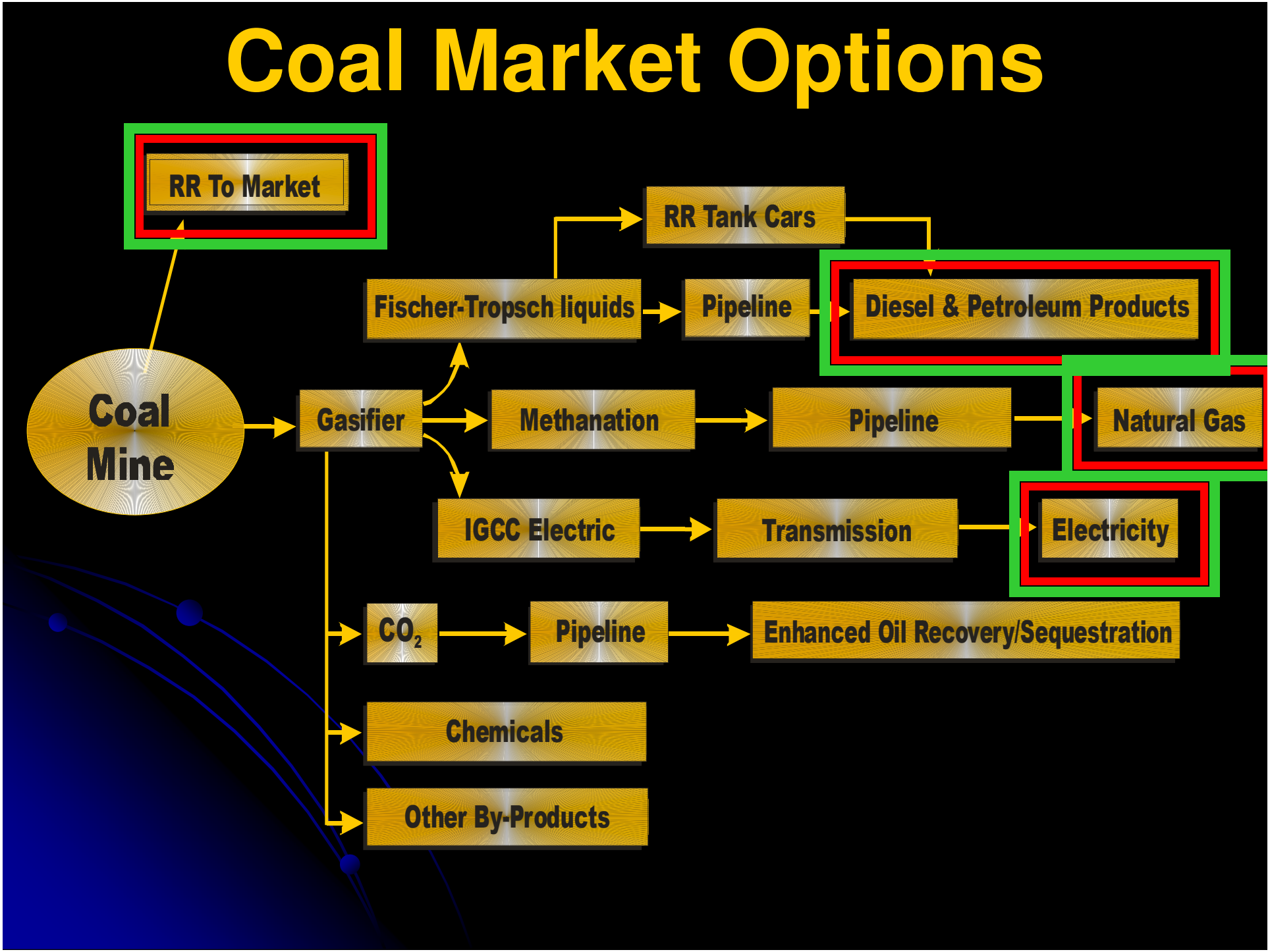
0 25 50 100 150 200 Miles

LIGNITE COAL

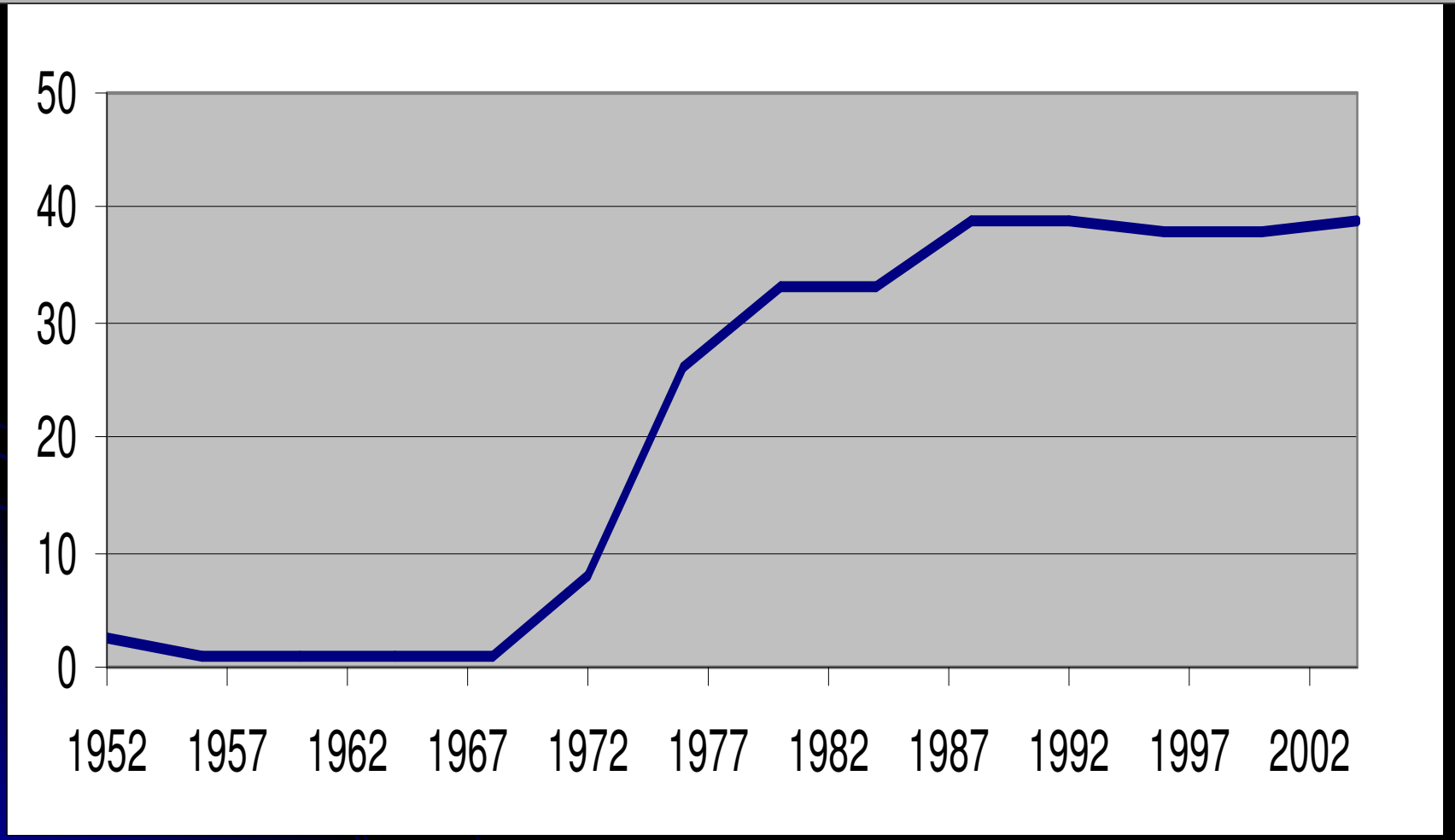
Montana Department of Environmental Quality

Sources of Information:

Coal Market Options



Montana Historic Coal Production
1952-2004



Source: US Department of Energy

Montana Historic Coal Production

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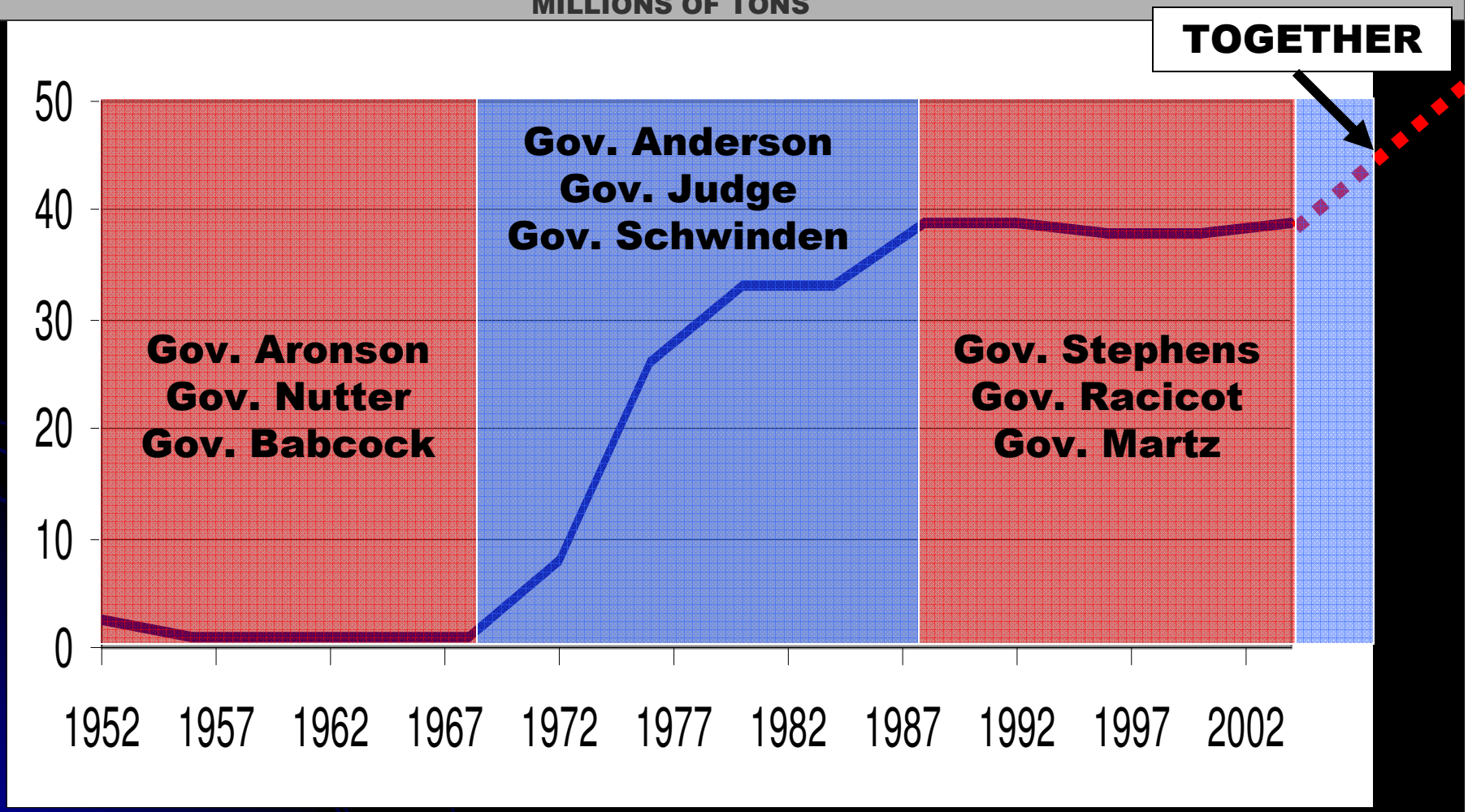
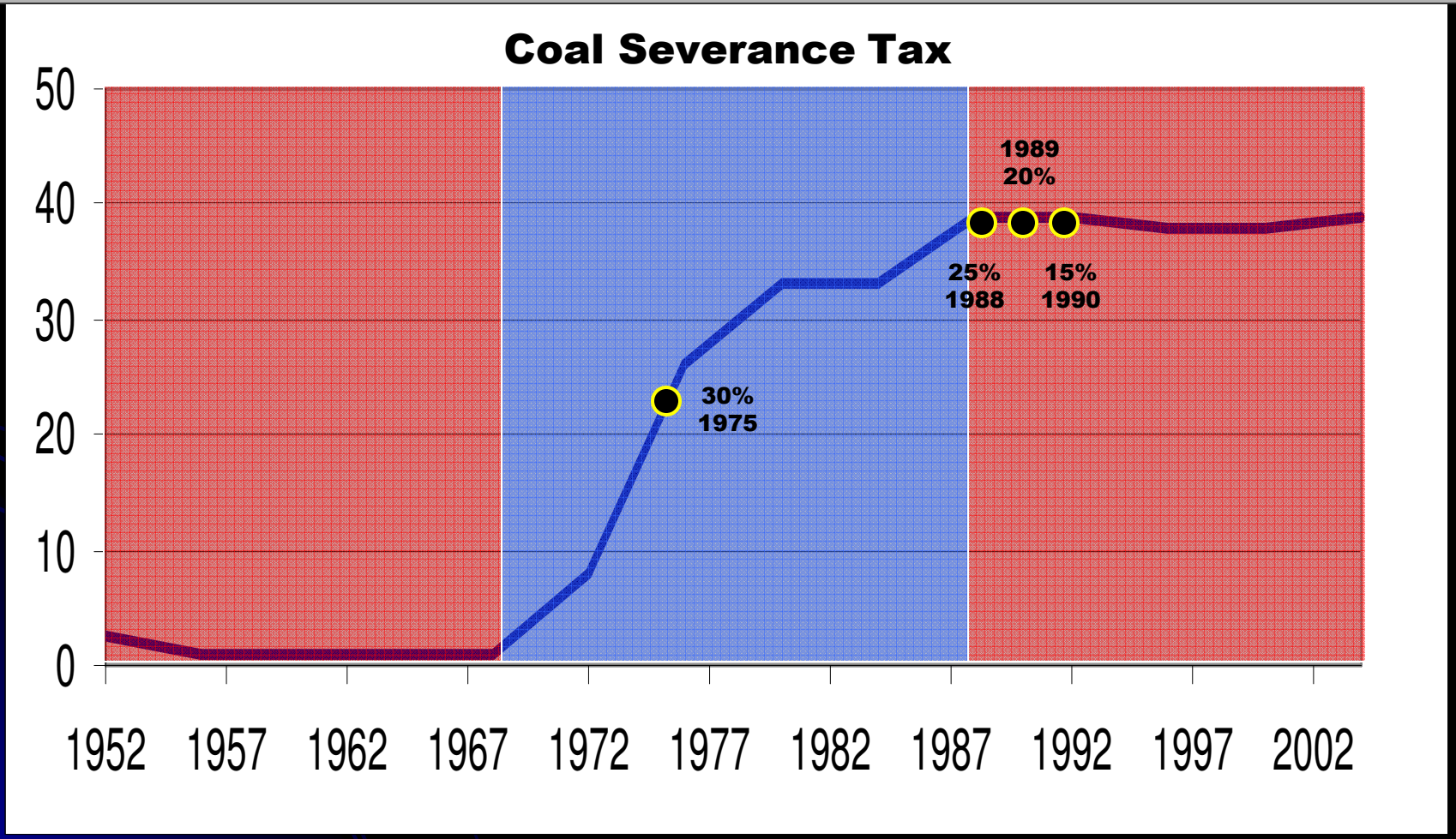


Source: US Department of Energy

Montana Historic Coal Production

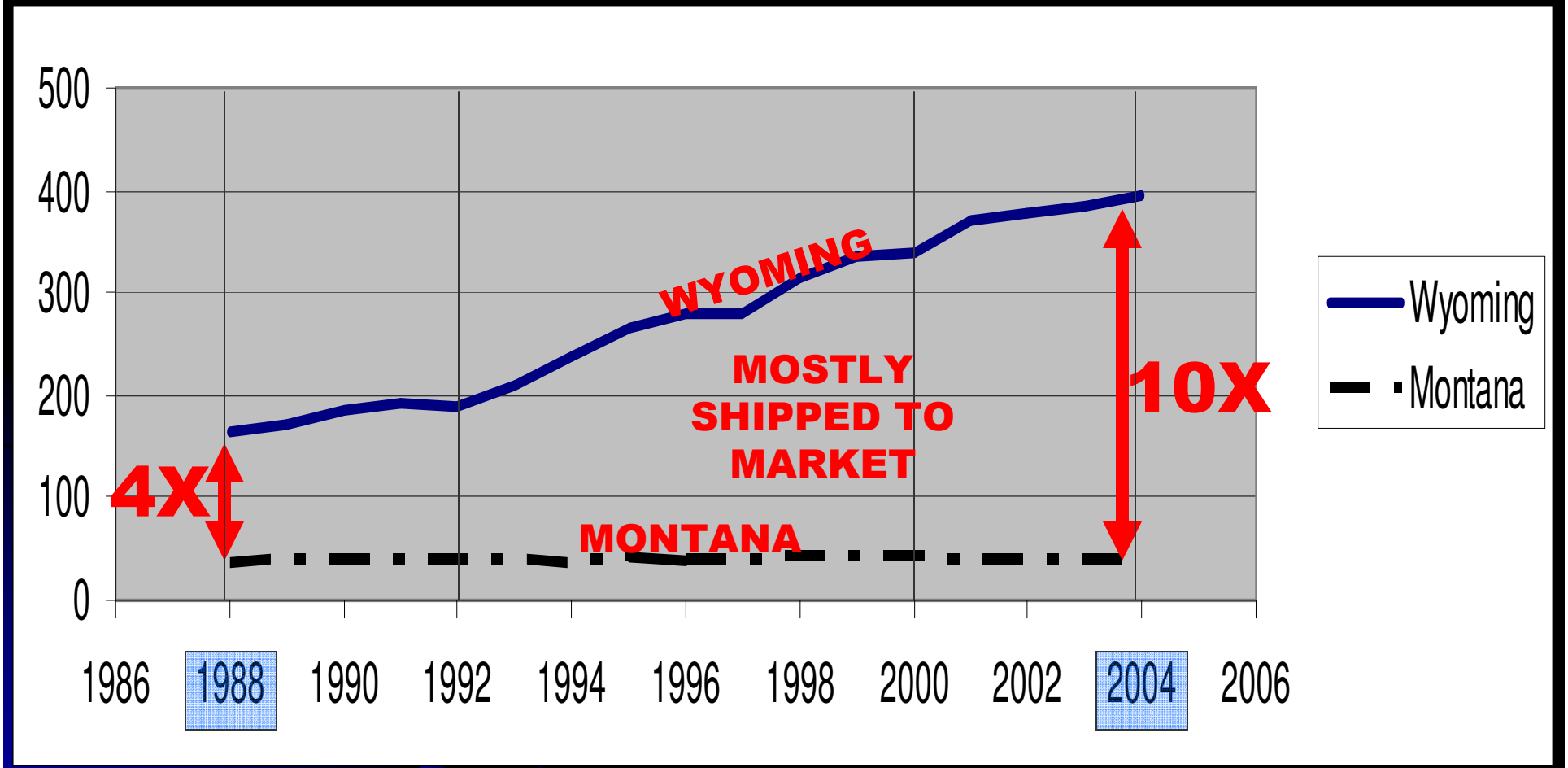
1952-2004

MILLIONS OF TONS



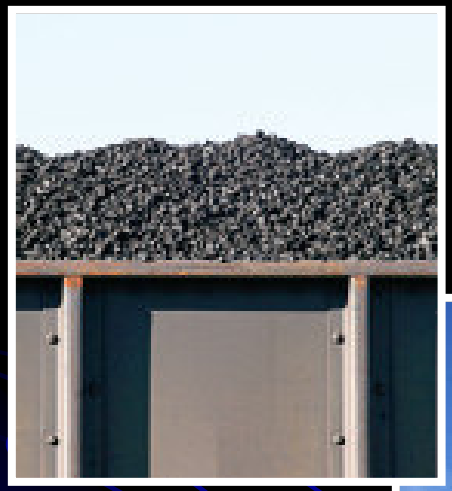
Source: US Department of Energy

Coal Production: Montana/Wyoming
1988-2004



Source: US Department of Energy

Coal Mining & Shipping



Coal to Syn-Gas

Coal Gasification Major Processes

Gasification Technologies

GE

Lurgi

Shell

KBR

Future Energy

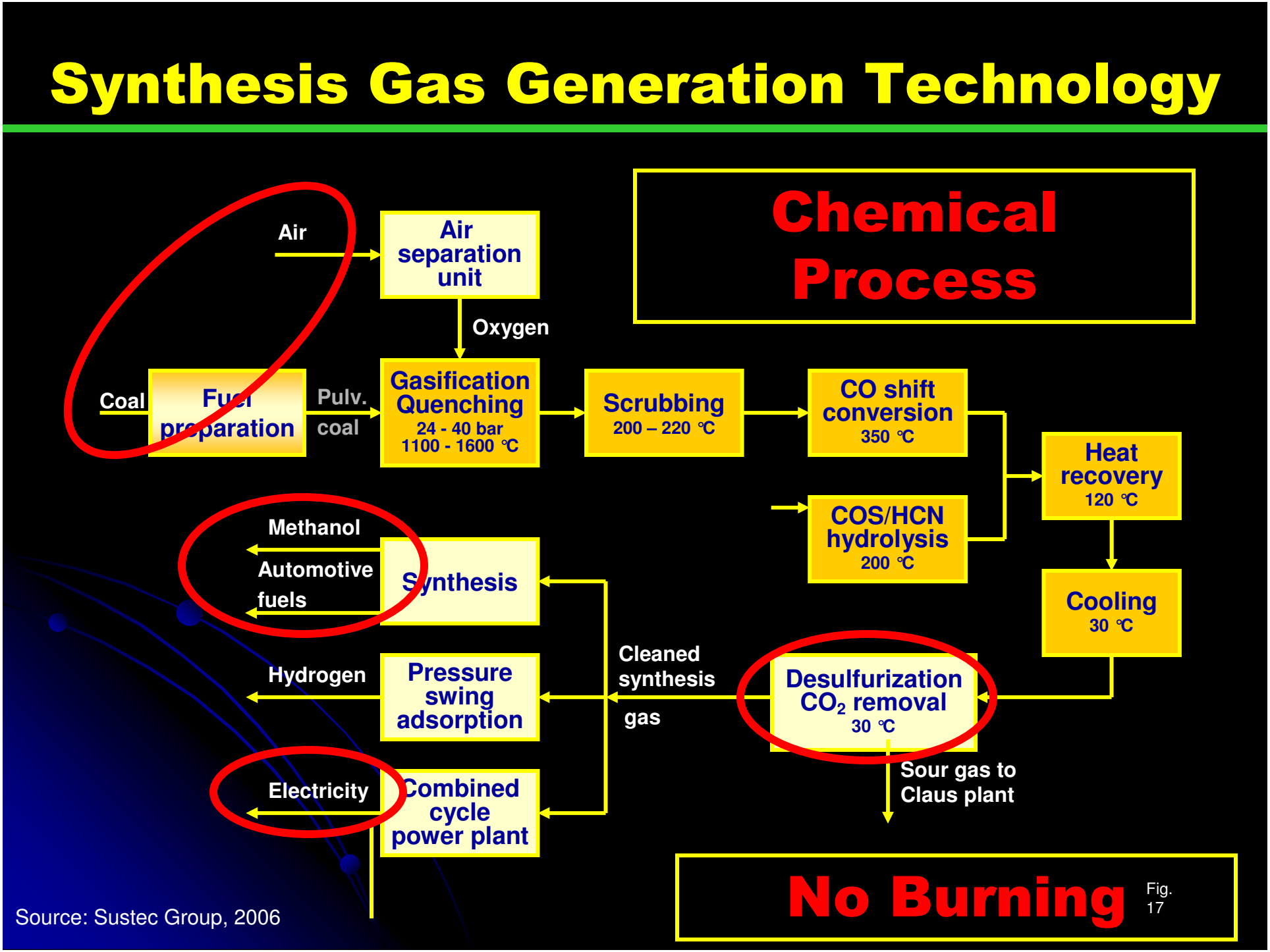
Conoco-Phillips

Alchemix

Proven Technology

Over 100 in Use

Synthesis Gas Generation Technology



Source: Sustec Group, 2006

Fig. 17

Potential Job Impact of Gasification Plant

Direct Employees at Beaulah, ND plant: **700**

Estimated secondary jobs @ 1.75 multiplier: **1,225**

Total Estimated Jobs:: **1,925**

Coal-to-Liquids

"CTL"

Coal Liquefaction Major Processes

Liquefaction Technologies

Sasol

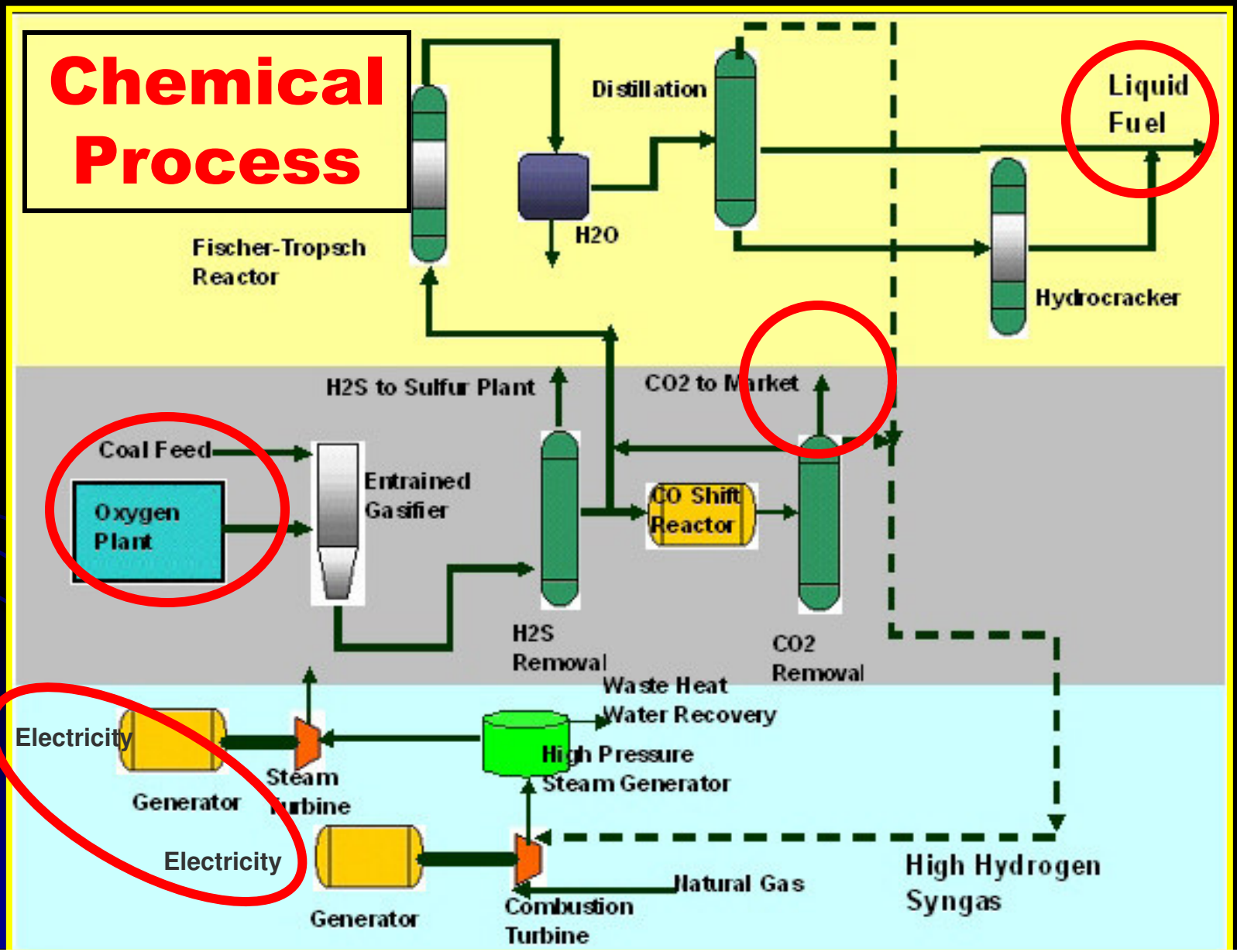
Lurgi

GE

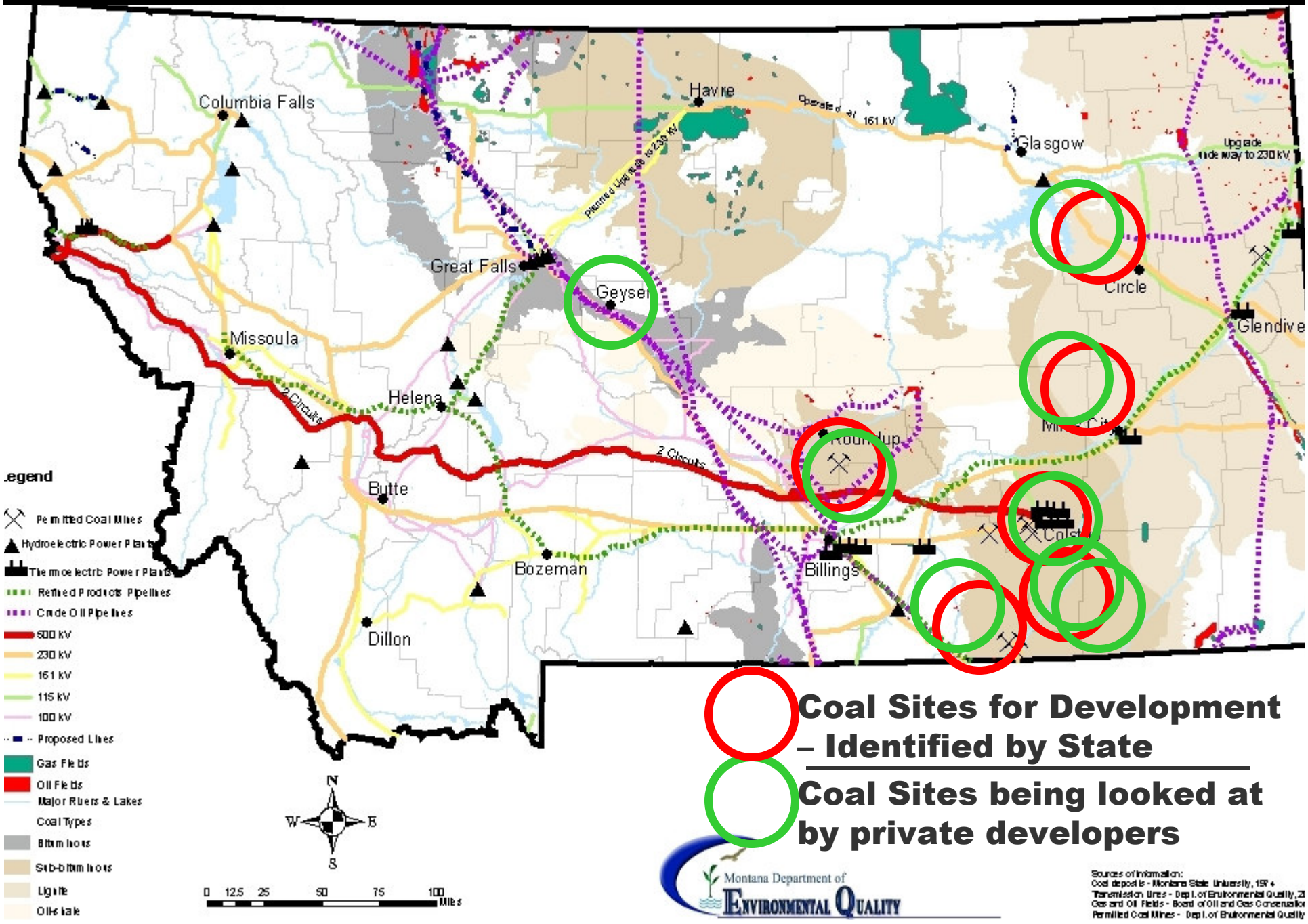
Rentech

Syntroleum

F-T Fuels w/ Electricity & CO2 Capture

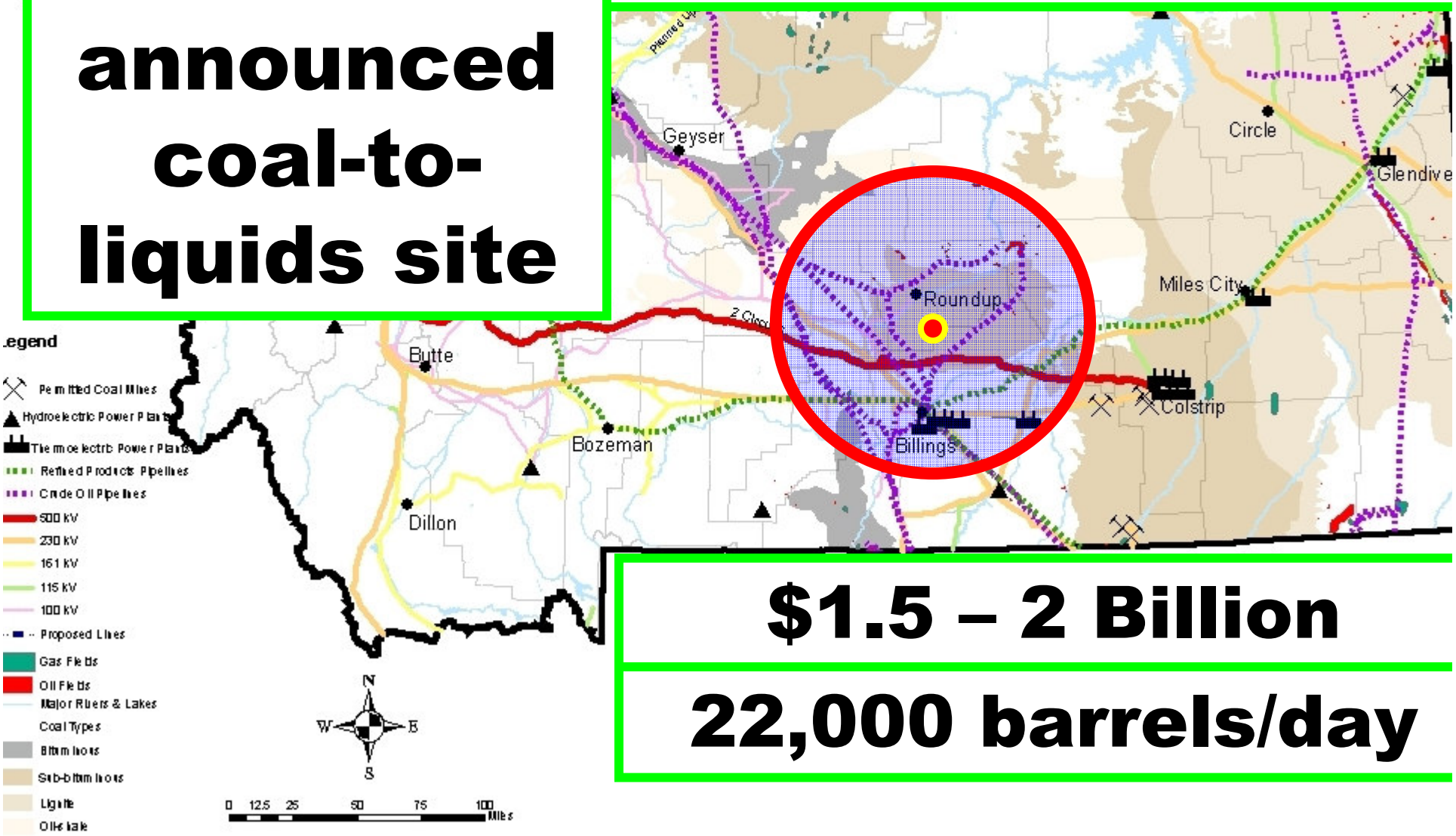


Some Montana Coal Sites for Developmen



Montana's first announced coal-to-liquids site

DKRW/Arch Coal - Bull Mountain Coal



$1.5 – 2 Billion

22,000 barrels/day

Estimated CTL Numbers

Construction & Operations Impacts Mine/Rail/Power Plant/CTL Facility

Bull Mountain Project

Study
by
Scott Rickard
of
Center for Applied Economic Research
MSUB
(Montana State University – Billings)

Estimated CTL Numbers

Construction & Operations Impacts Mine/Rail/Power Plant/CTL Facility

Impact Type	Direct Impact	Total Impact
Construction Employment Impact	6,812 FTEs	9,985 FTEs
Construction Labor Income Impact	$204.7million	$293.9million
Operations Employment Impact	1,764 FTEs	4,264 FTEs
Operations Labor Income Impact	$194.3million	$264.6million

Estimated CTL Numbers

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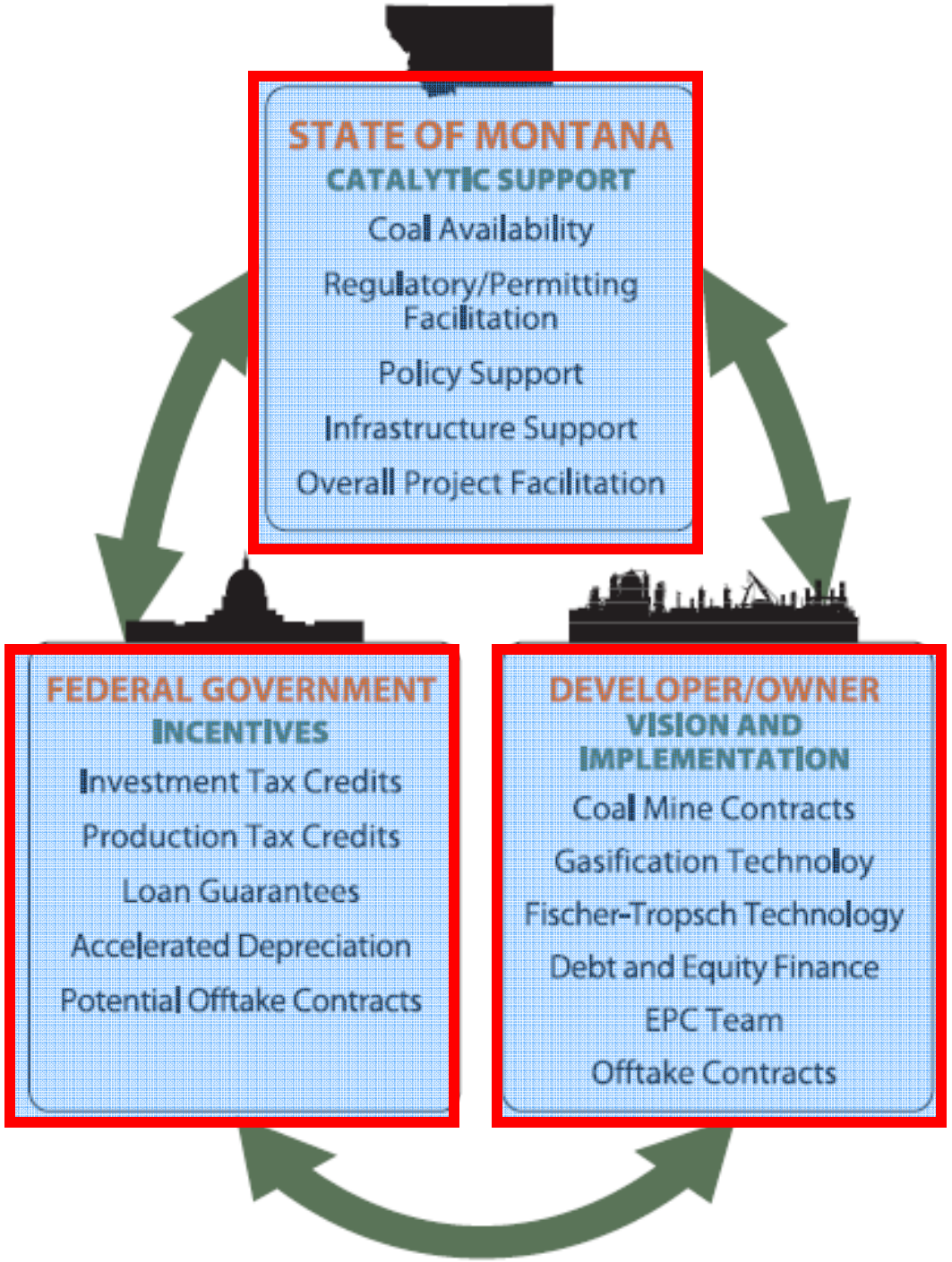
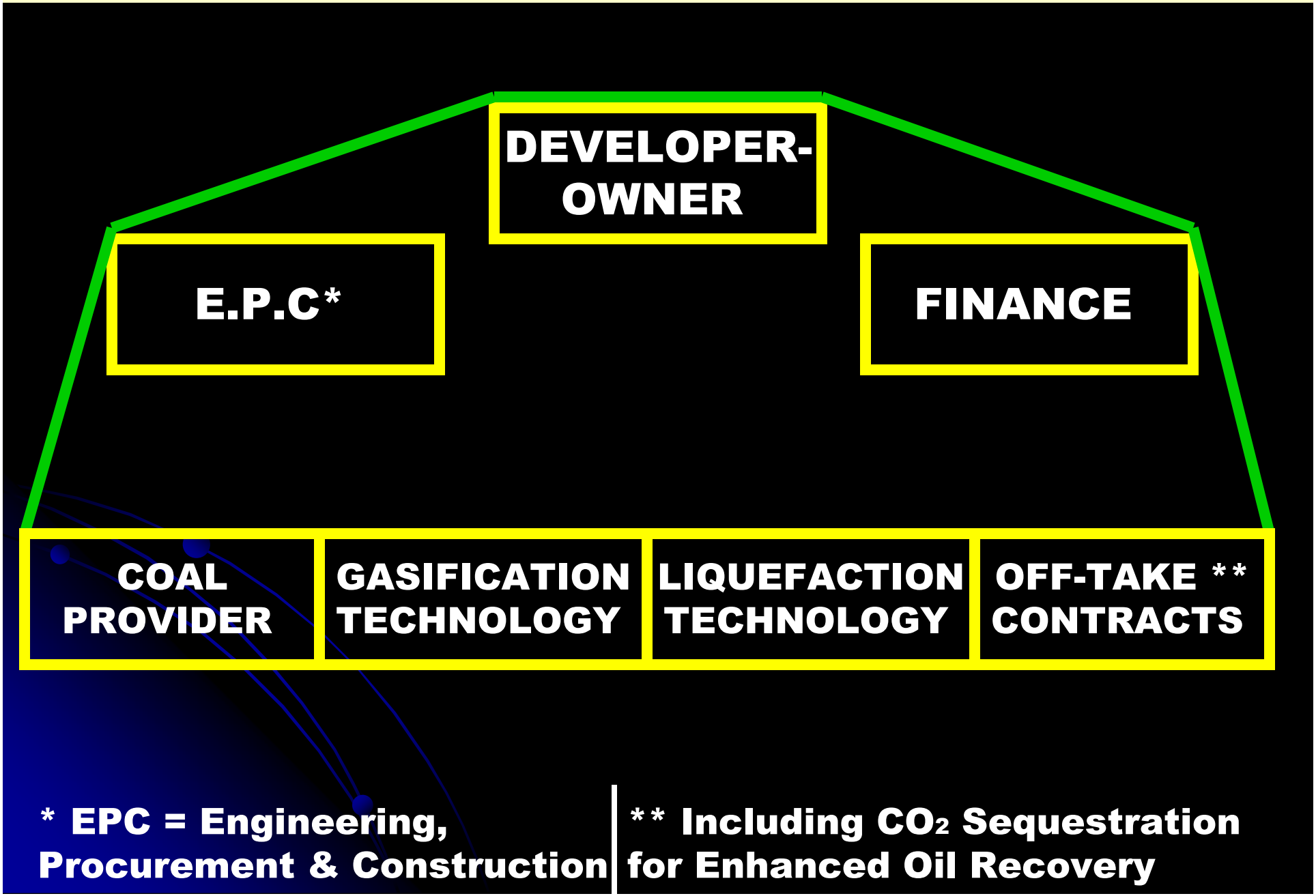
Coal to Liquid Development Triangle

Governor Schweitzer's Approach


STATE OF MONTANA
CATALYTIC SUPPORT
Coal Availability
Regulatory/Permitting Facilitation
Policy Support
Infrastructure Support
Overall Project Facilitation
FEDERAL GOVERNMENT
INCENTIVES
Investment Tax Credits
Production Tax Credits
Loan Guarantees
Accelerated Depreciation
Potential Offtake Contracts
DEVELOPER/OWNER
VISION AND IMPLEMENTATION
Coal Mine Contracts
Gasification Technoloy
Fischer-Tropsch Technology
Debt and Equity Finance
EPC Team
Offtake Contracts

Coal-to-Liquid Development Structure

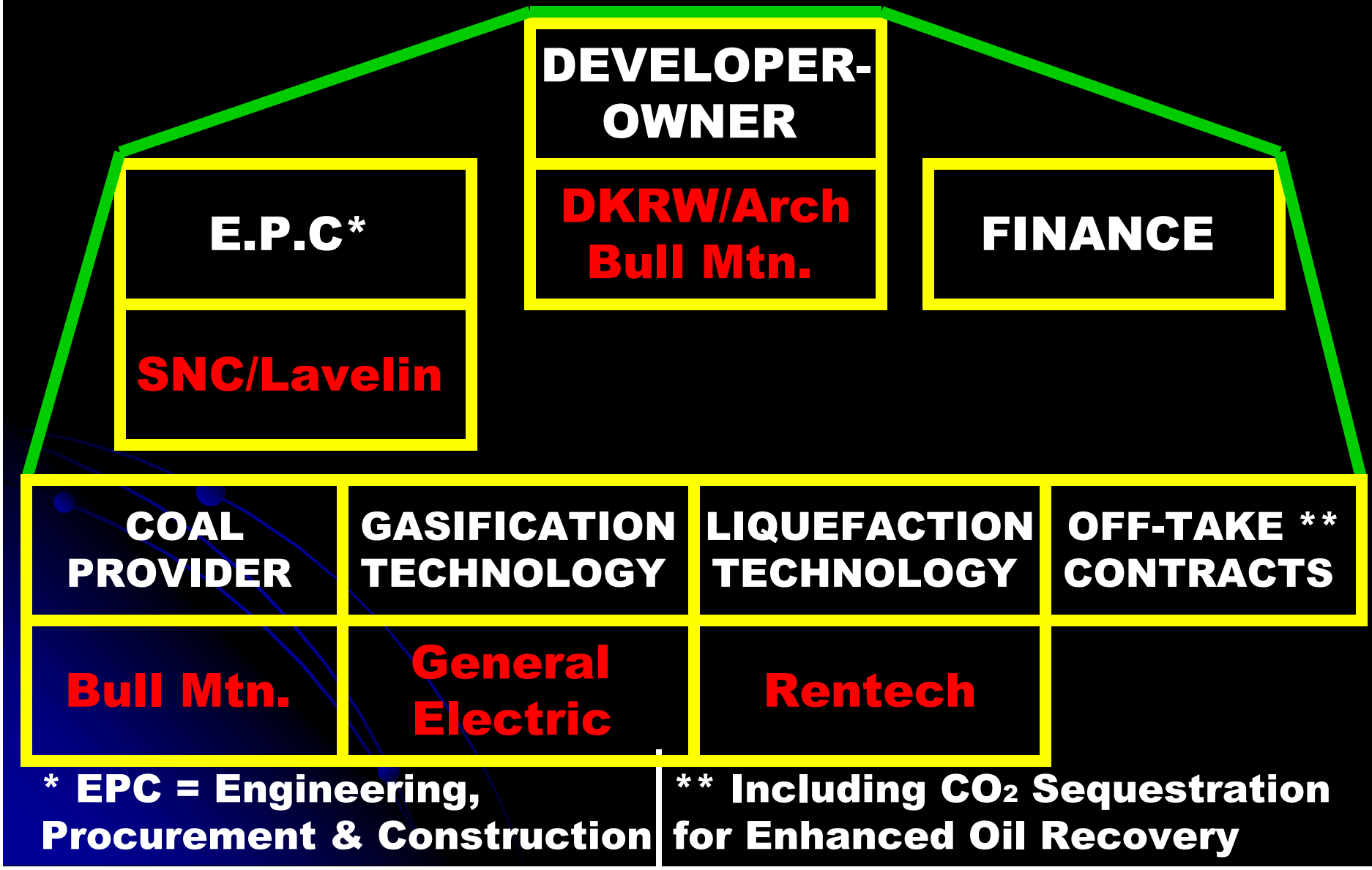


* EPC = Engineering, Procurement & Construction

** Including CO_2 Sequestration for Enhanced Oil Recovery

Coal-to-Liquid Development Structure

DKRW/Arch Coal – Bull Mtn CTL Plant



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Coal-to-Liquid Development Structure

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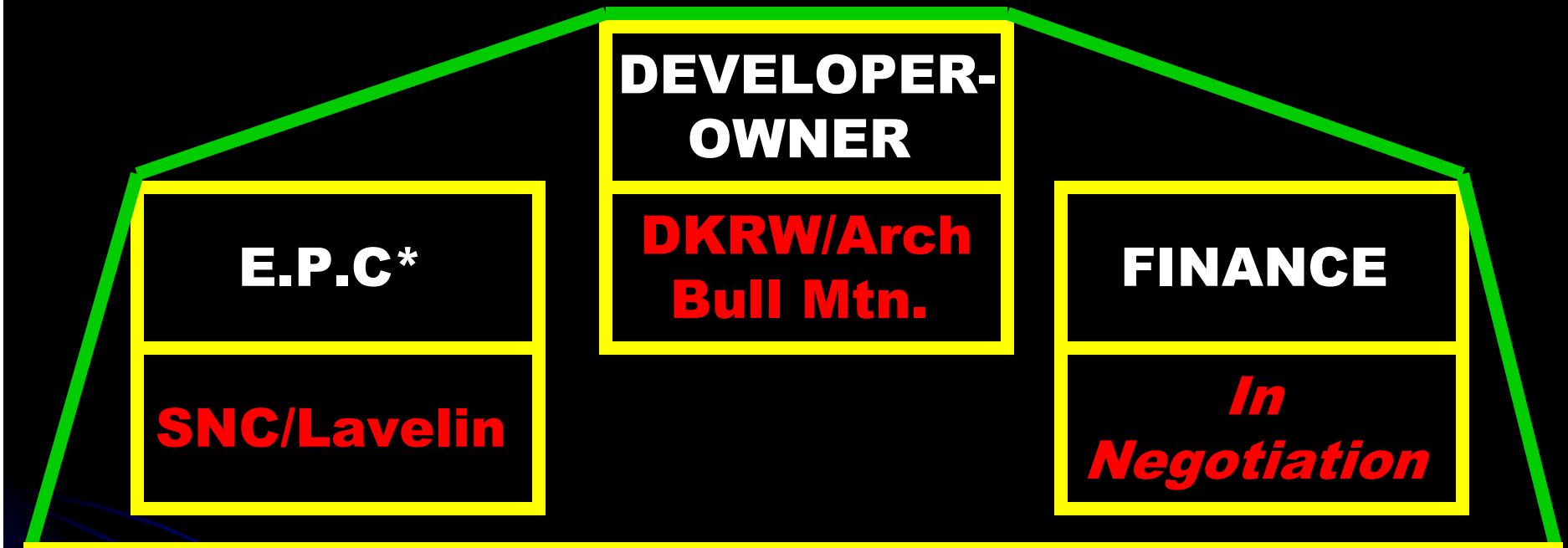


COAL PROVIDER	GASIFICATION TECHNOLOGY	LIQUEFACTION TECHNOLOGY	OFF-TAKE ** CONTRACTS
Bull Mtn. Mine	General Electric	Rentec Technologies	*Confidential*

* EPC = Engineering, Procurement & Construction

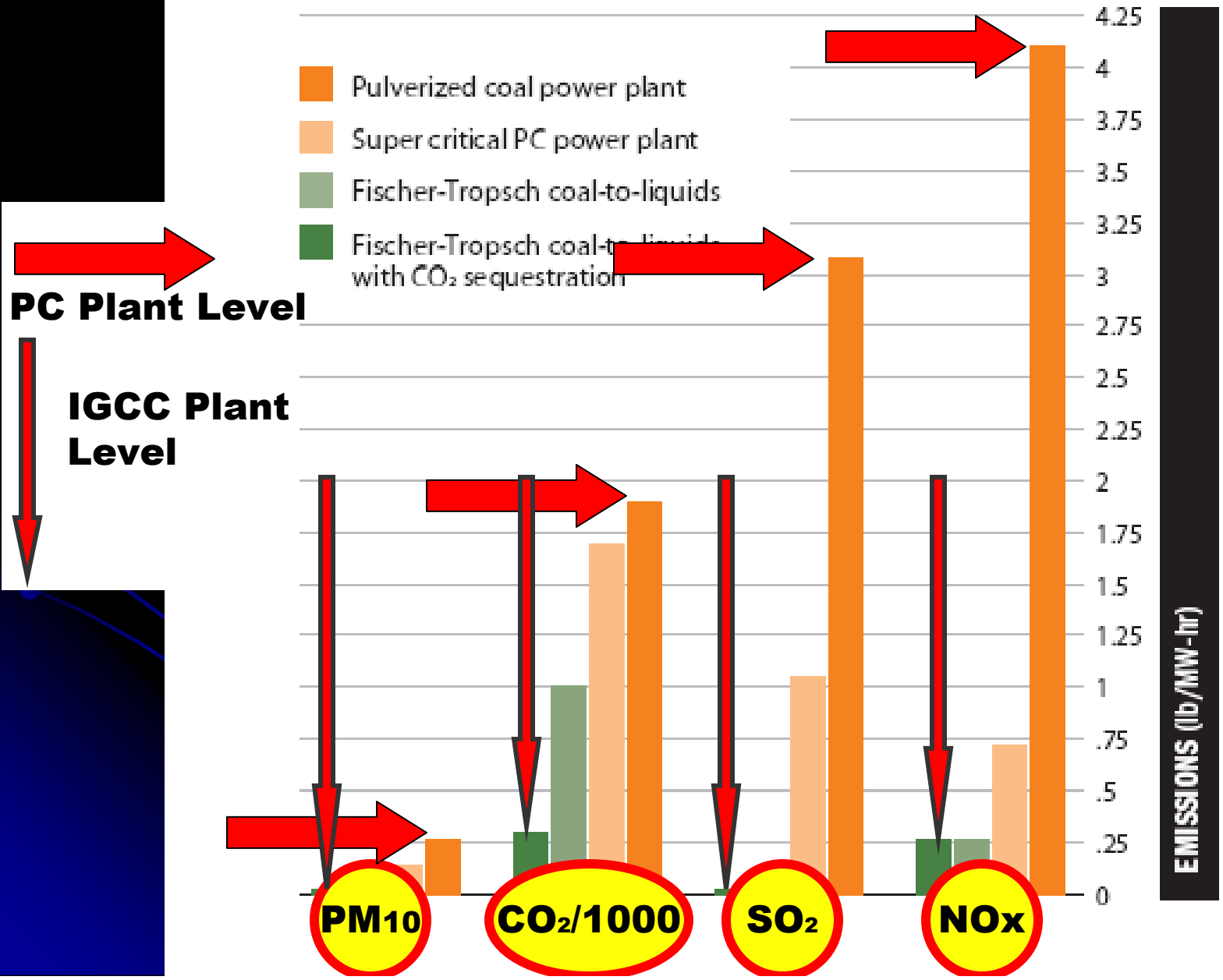
** Including CO_2 Sequestration for Enhanced Oil Recovery

Coal-to-Liquid Plant Economic Viability

Can profitably produce diesel as long as oil stays above $35-40/barrel

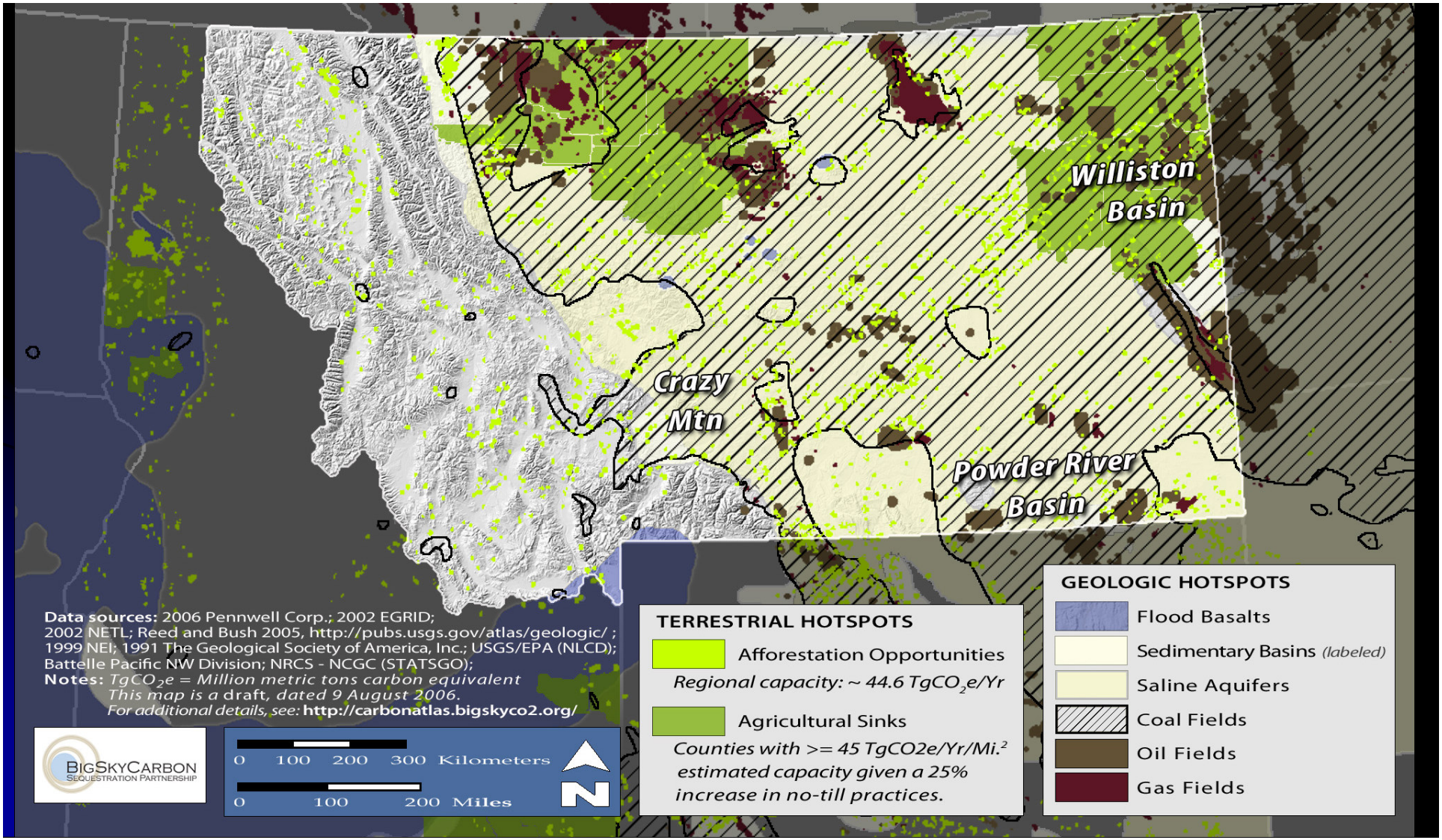
Emissions Comparison of F-T Fuels Plants with 535MW Power Plants

(national figures, Rentech)

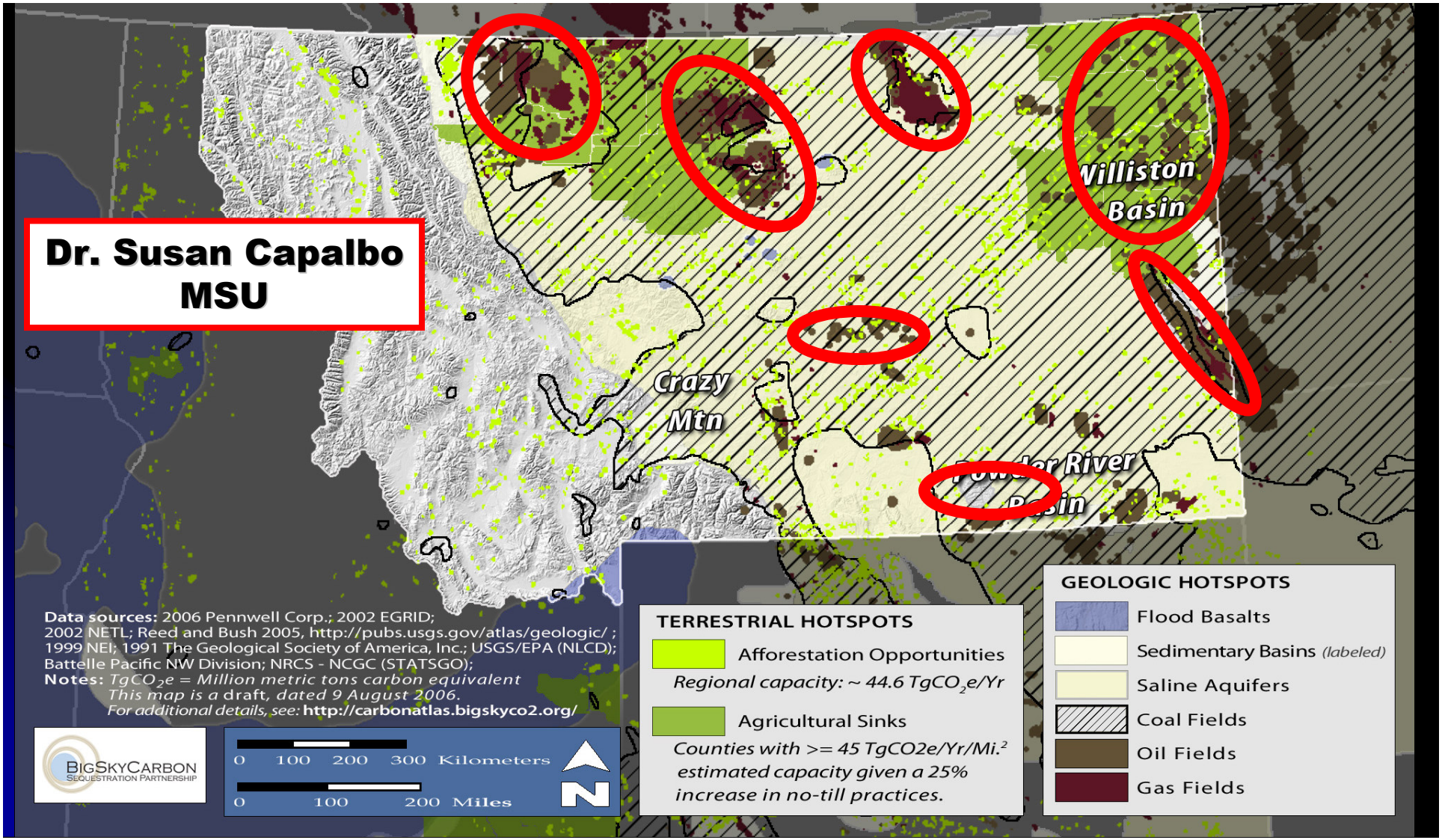


Carbon Capture & Sequestration

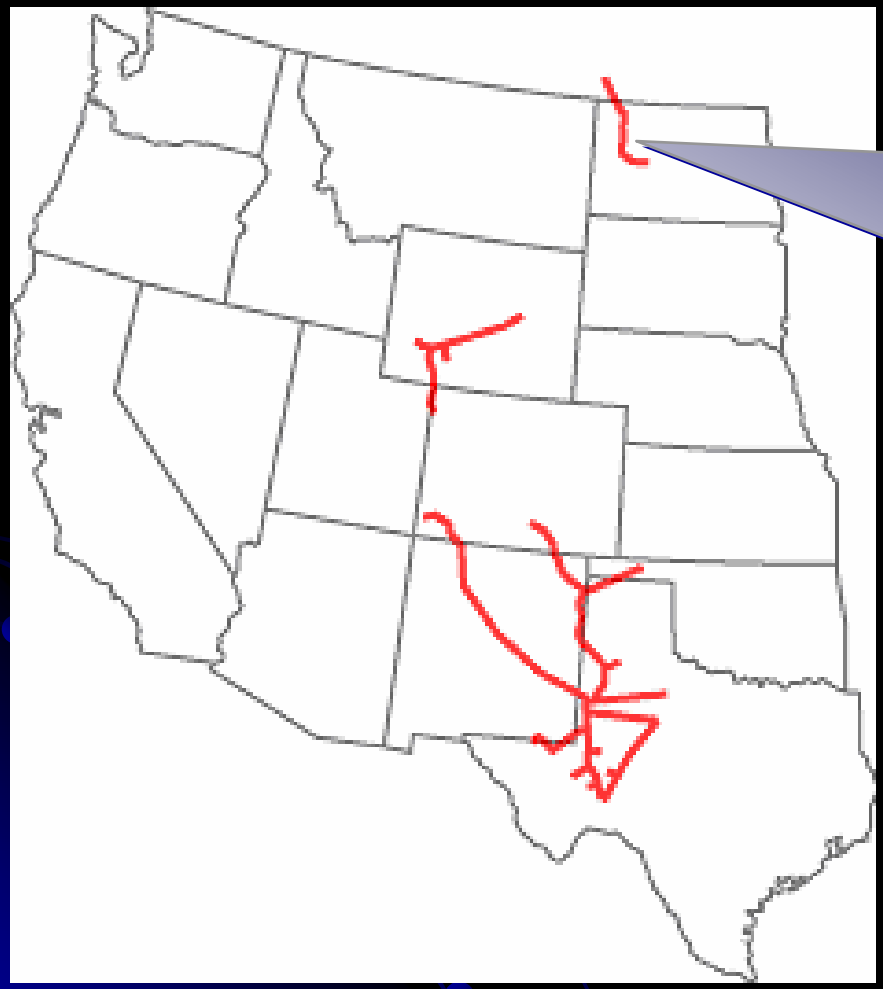
Hotspots for CO_2 Sequestration in Montana

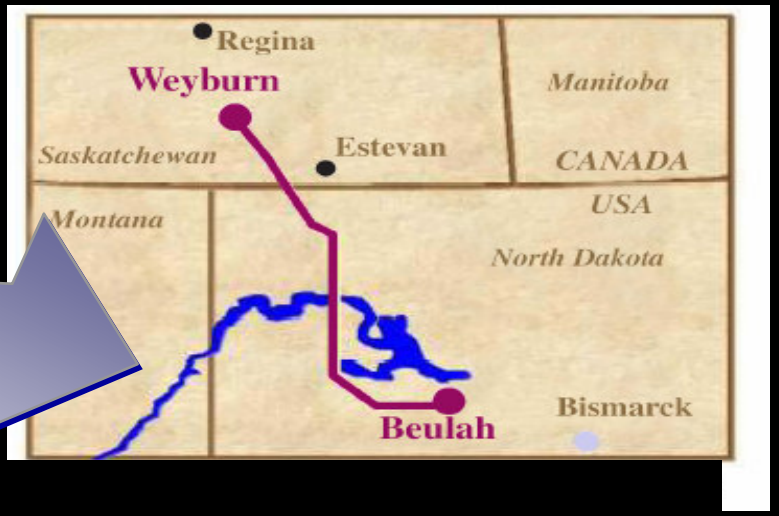


Hotspots for CO_2 Sequestration in Montana



E.O.R. Carbon Sequestration Beulah, ND



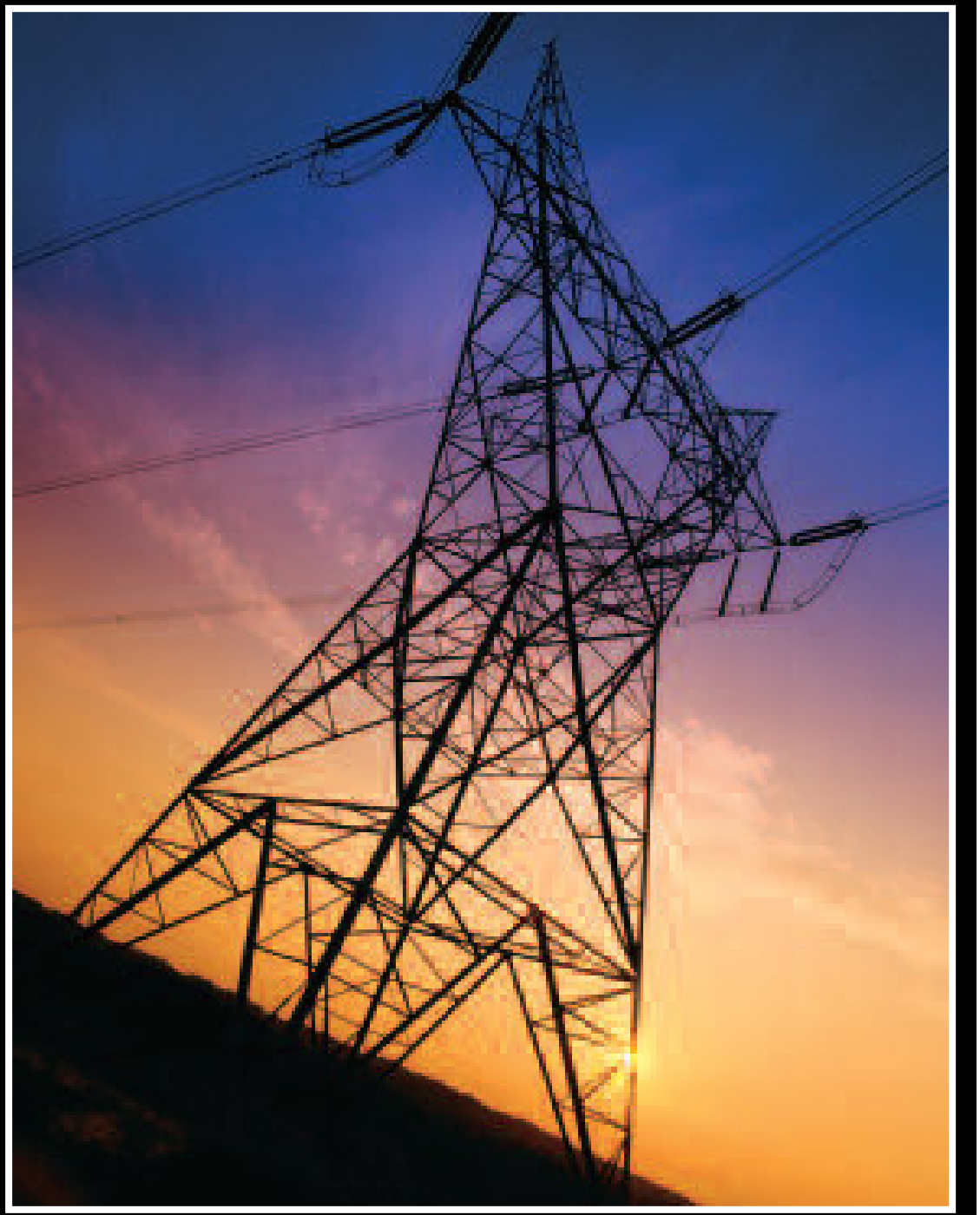


Pipeline Route from North Dakota Gasification Plant to Weyburn Oil Field

- **5,000 tons / day CO_2**
- **204-mile CO_2 pipeline from Dakota Gasification Plant**
- **130M barrels oil over 20-year project [EOR]**
- **1M tons / year CO_2 sequestered**

Source: Carl Bauer, NETL, DOE, 10-18-05

Coal to Electricity



Types of Coal Power Generation Plants

Pulverized Coal Combustion (PCC) Plants

Types of Coal Power Generation Plants

Circulating Fluidized Bed Combustion (CFBB) Plants

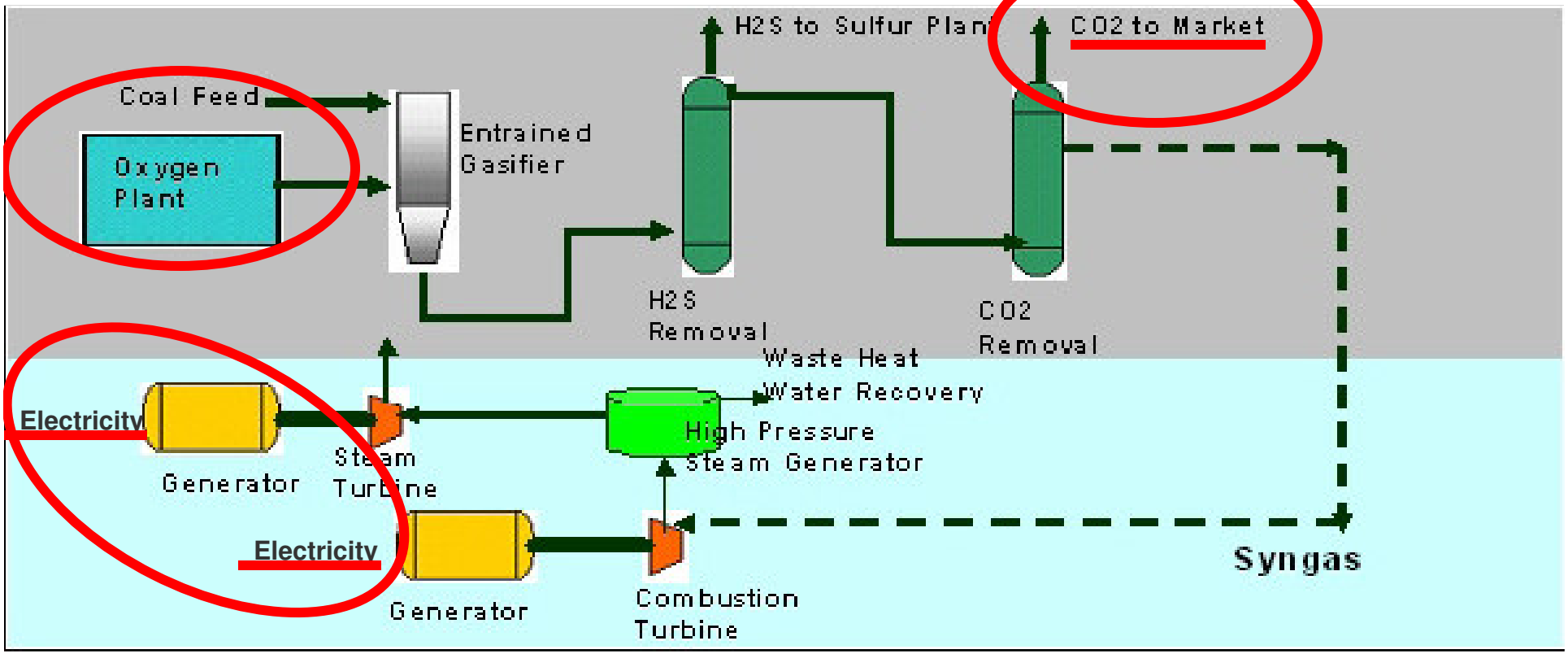
Types of Coal Power Generation Plants

IGCC Plants

Integrated
Gasification
Combined
Cycle

IGCC Process Schematic

Chemical Process



Why are we pushing "green power" (clean coal and wind) development?

Montana is …

… the 800# Gorilla when it comes to domestic coal supply !

When it comes to energy consumption…

… California is the 800# Gorilla!

Exactly how BIG is the 800# Gorilla?

California

CA electrical power requirements next 20 years ...

New power: 21,000 MW

New clean energy in West by 2015:

30,000 MW -- CDEAC Report

Is the demand Green ?

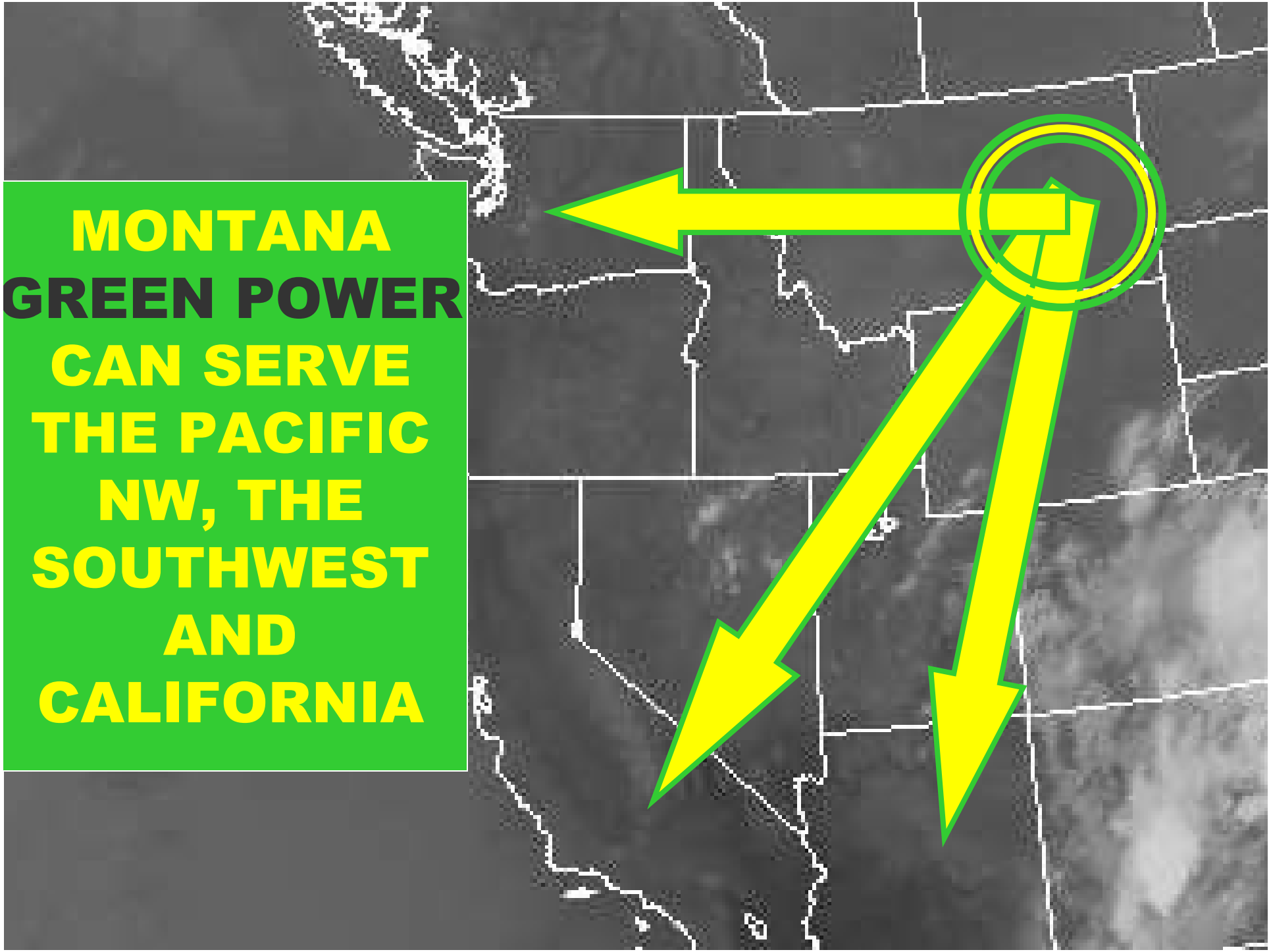
California

CA legally demands any electric power imported into the state must ...

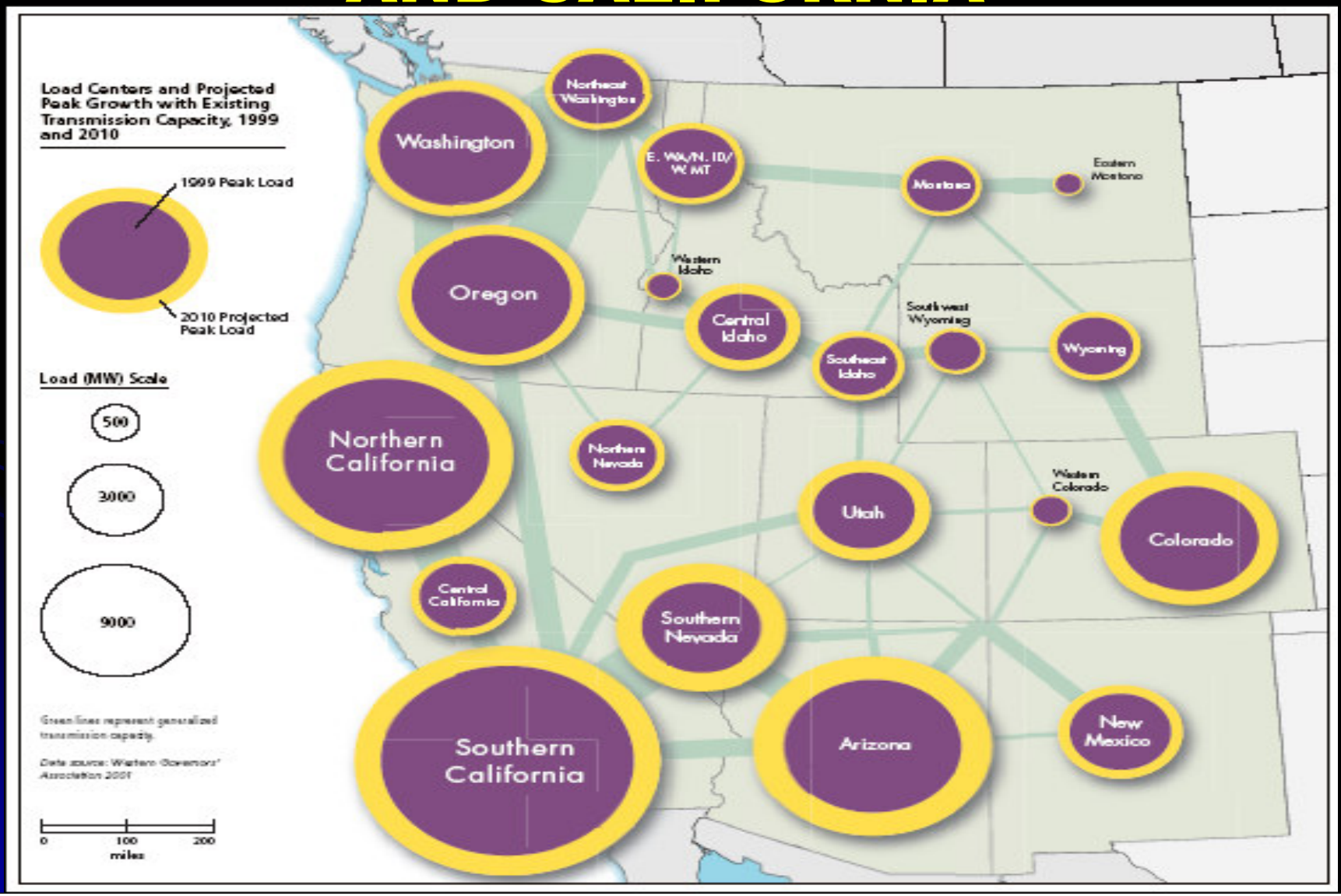
... meet IGCC standards -- greatly reduced emissions with capture of greenhouse gases.

... include 20% of green power in the portfolio mix by 2010

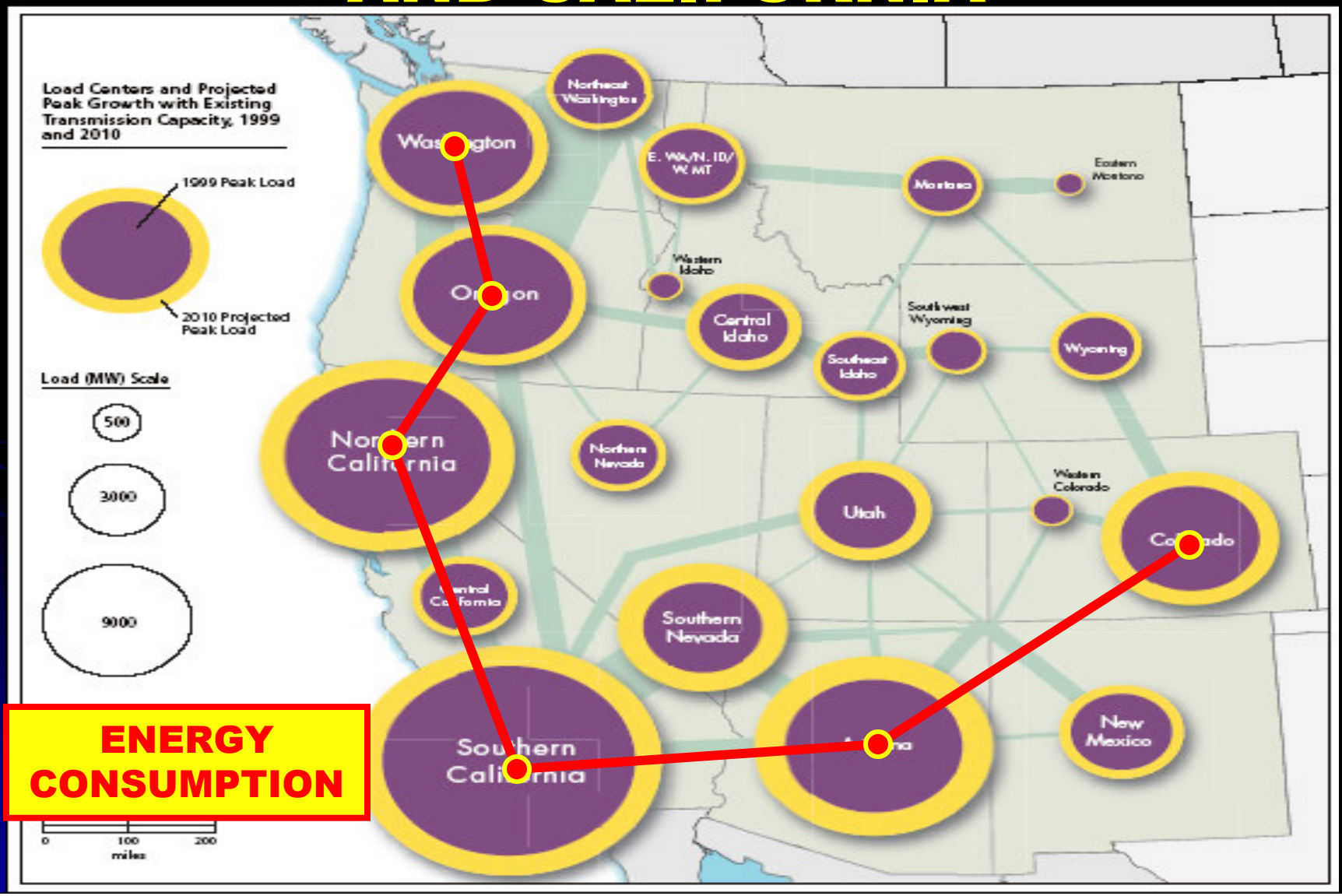
... 33% by 2020


MONTANA
GREEN POWER
CAN SERVE
THE PACIFIC
NW, THE
SOUTHWEST
AND
CALIFORNIA

MONTANA GREEN POWER CAN SERVE THE PACIFIC NW, THE SOUTHWEST AND CALIFORNIA



MONTANA GREEN POWER CAN SERVE THE PACIFIC NW, THE SOUTHWEST AND CALIFORNIA



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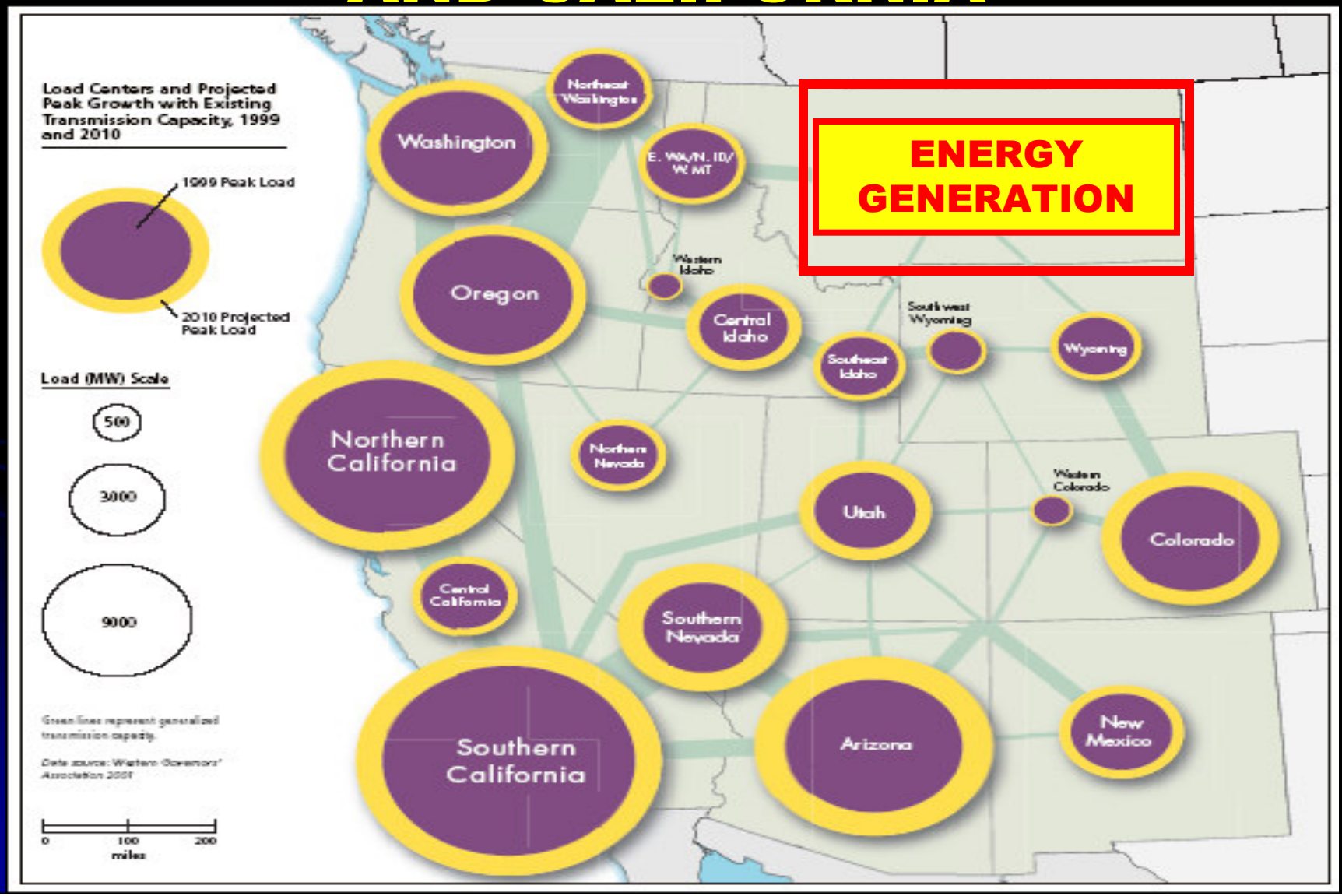

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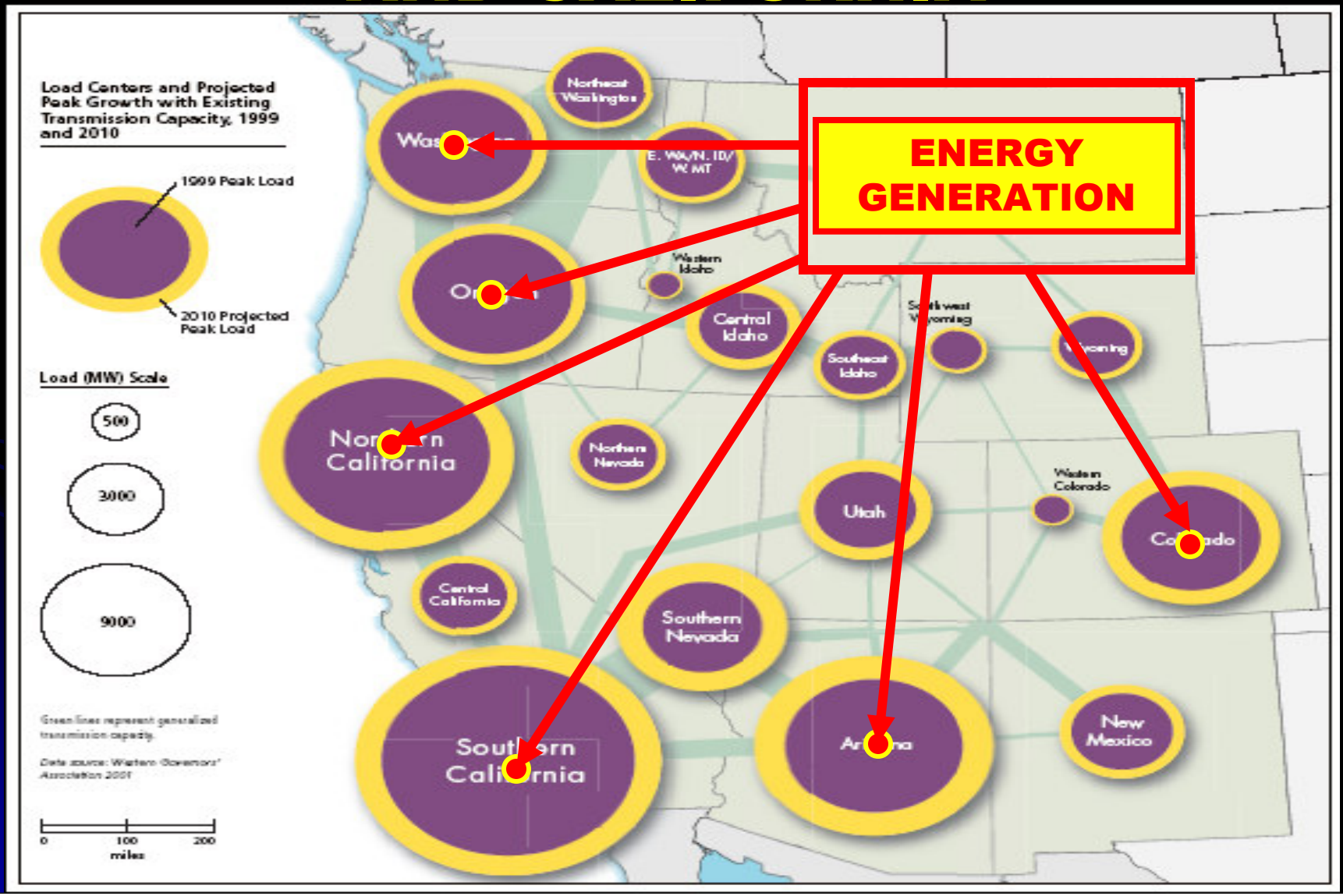


To do that … we need more transmission lines from Montana to the emerging markets

Potential Electric Transmission Projects for Montana

Northern Lights HVDC* Line

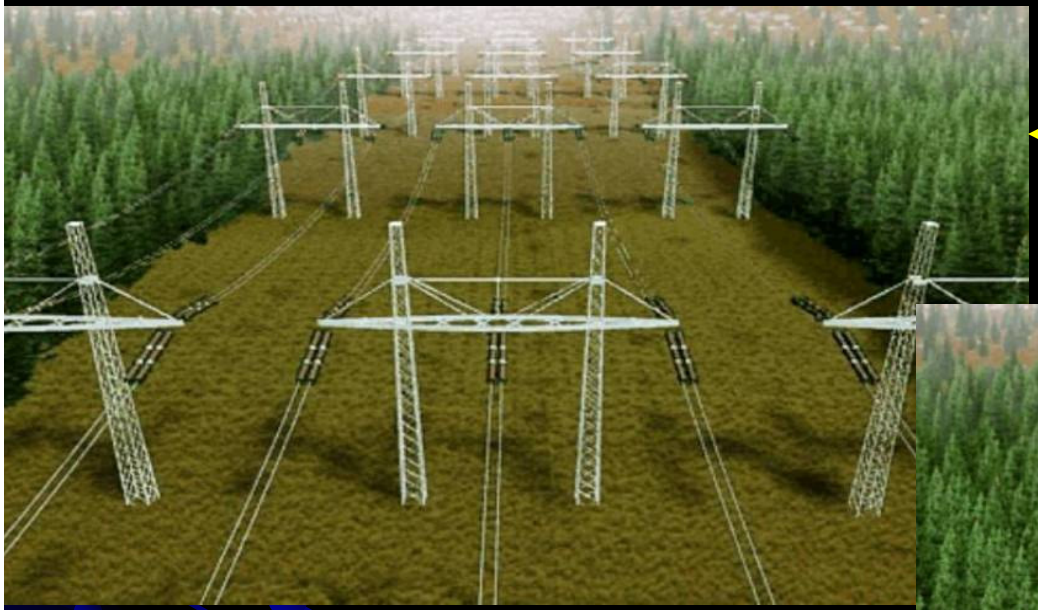
(* High Voltage Direct Current)

Now in permitting!

DC is Environmentally Superior

EASIER PERMITTING

AC Corridor with 3 @ 500kV lines, for a total capacity of 3000-4000 MW



DC Corridor with 1 @ 500kV bi-pole line, for a total capacity of 3000 MW

LESS LINE LOSS

The NorthernLights Project

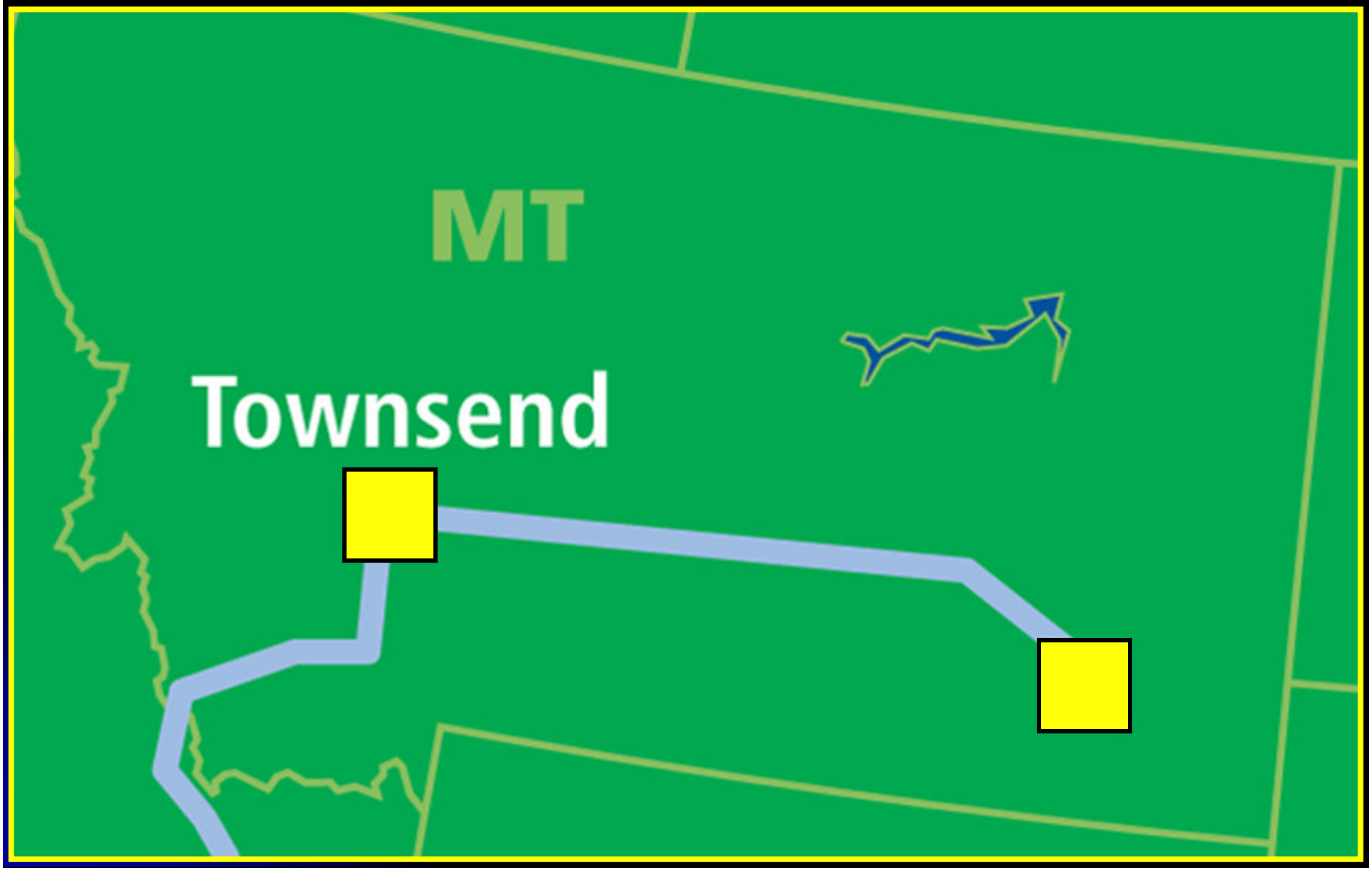
Northern Lights Project

Estimated Value of Project

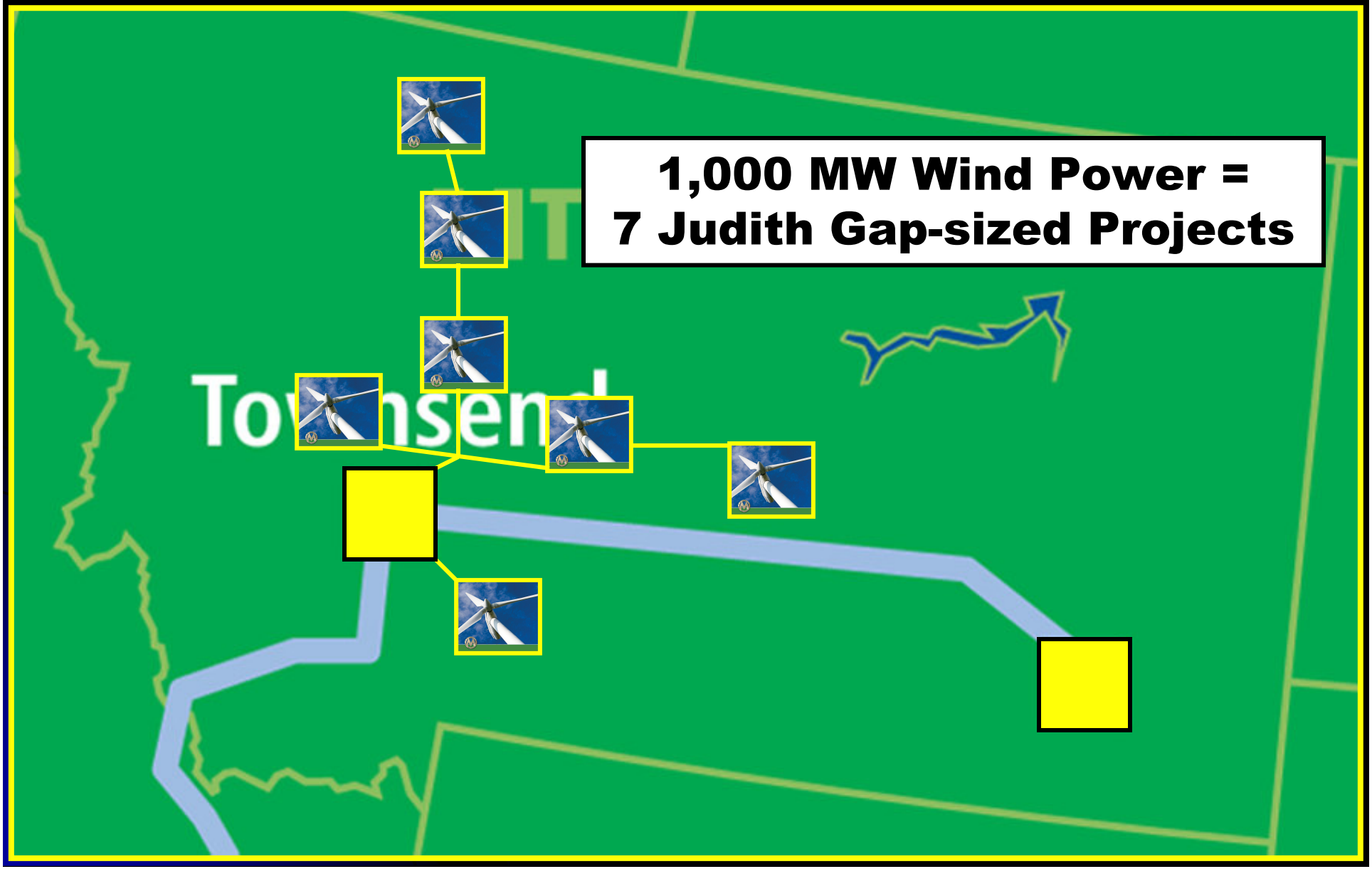
Total: $2 Billion est.

Montana: $600+ Million est.

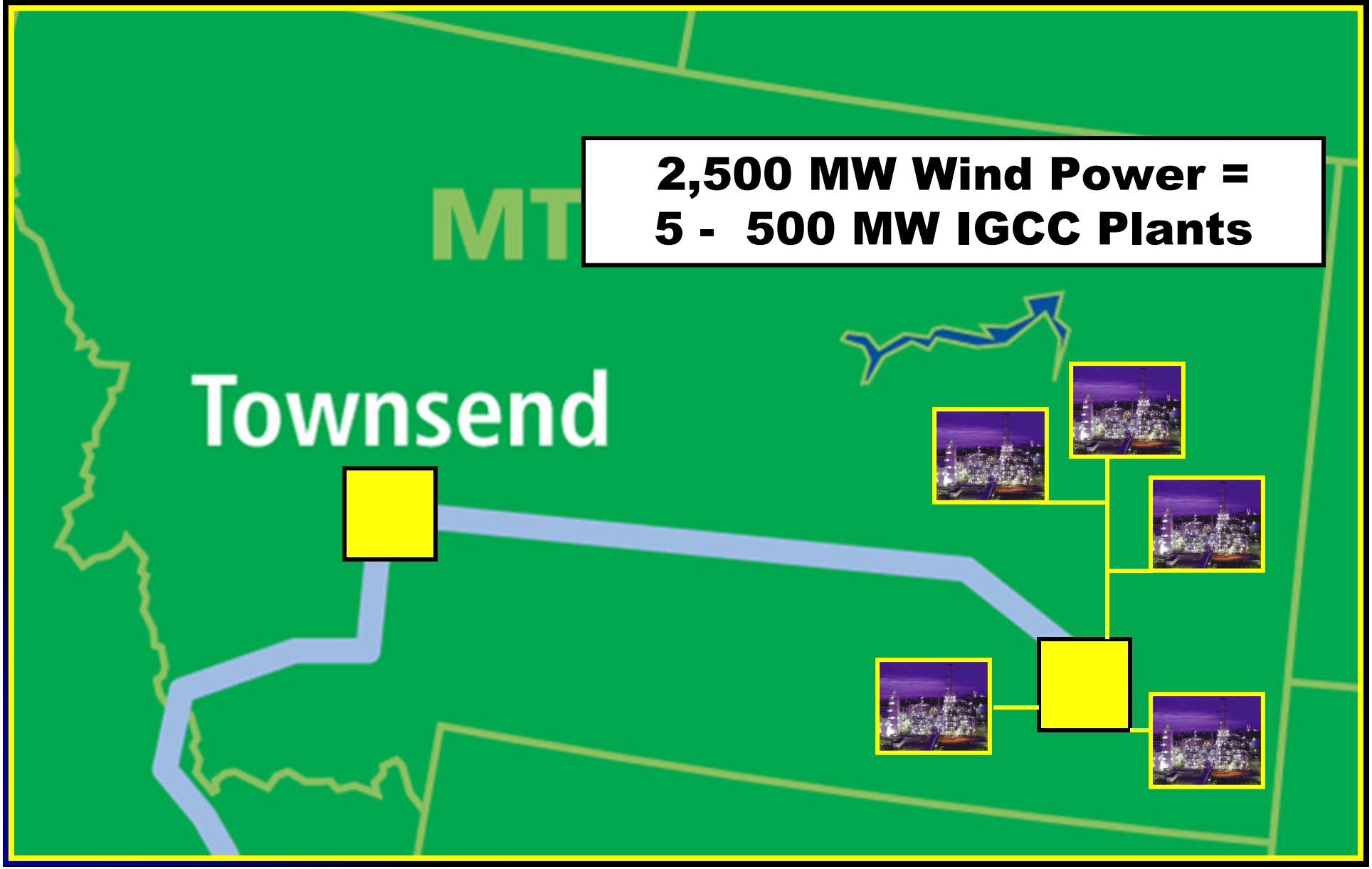
Up to 3500 MW of Power



Up to 3500 MW of Power



Up to 3500 MW of Power



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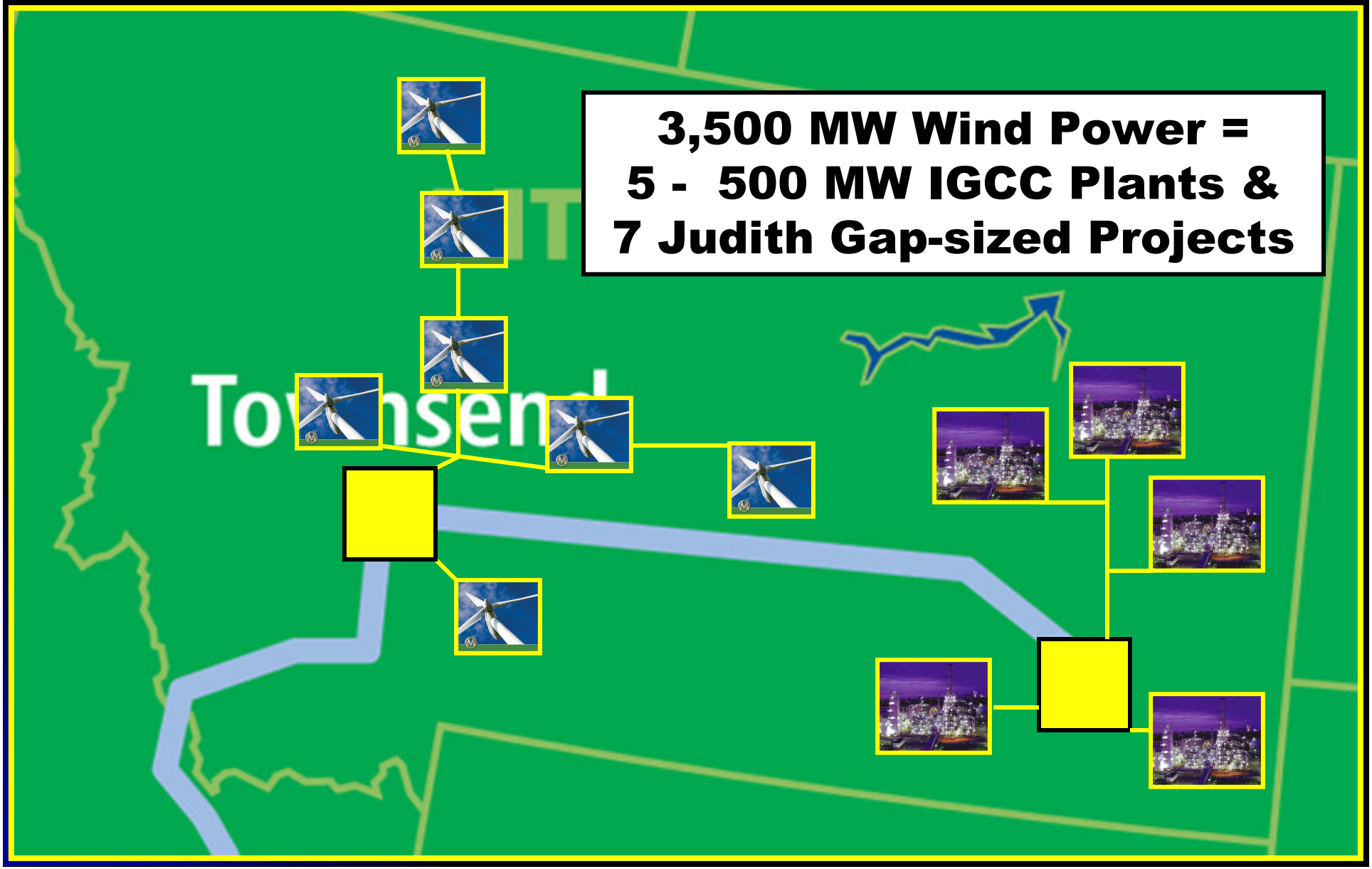

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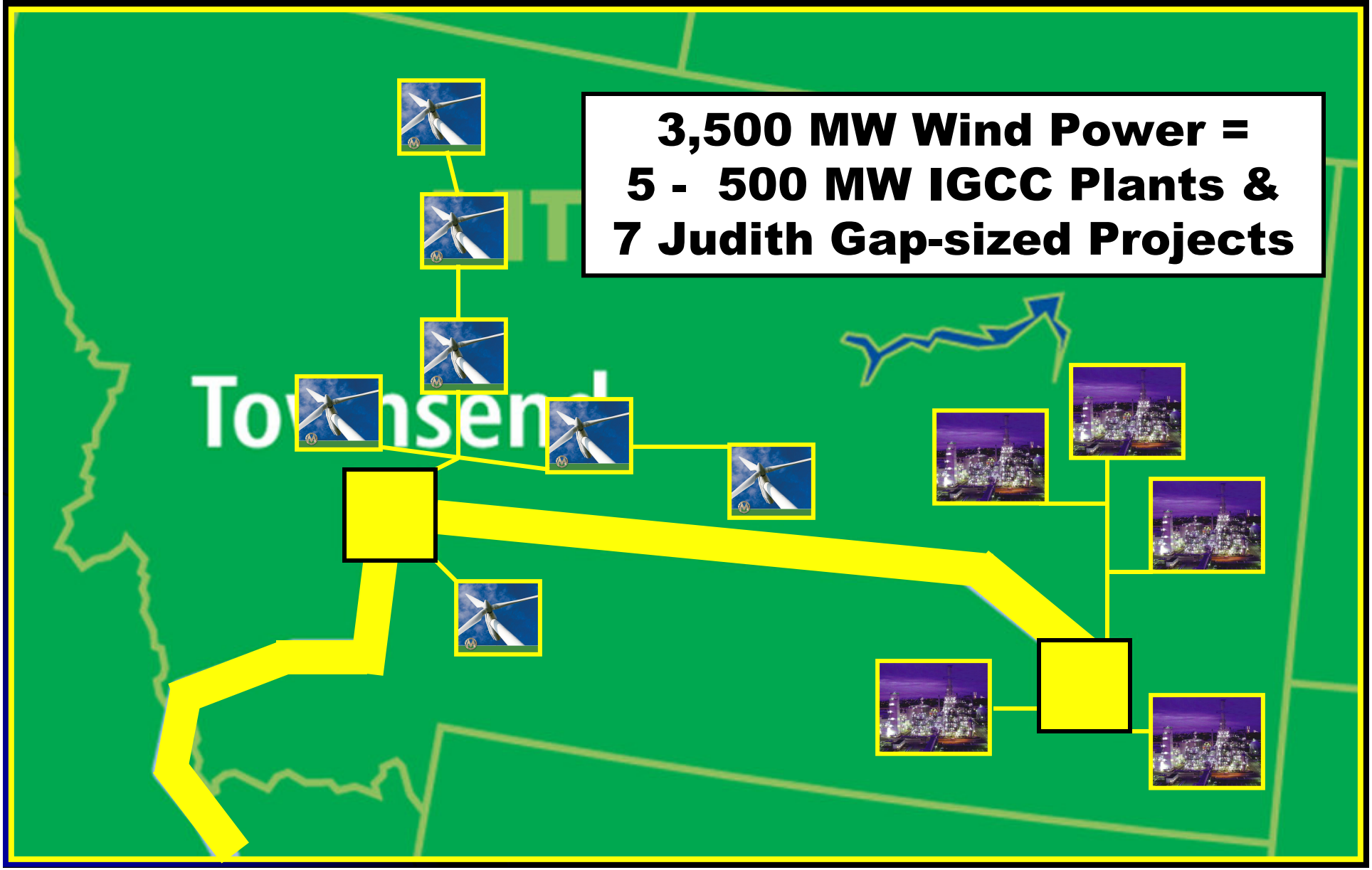


Northern Lights Project

Estimated Value of Projects Triggered by Transmission Line

7 Judith Gap-sized Projects:
$1 Billion est.

5-500 MW IGCC Plants:
$4+ Billion est.

Potential Electric Transmission Projects for Montana

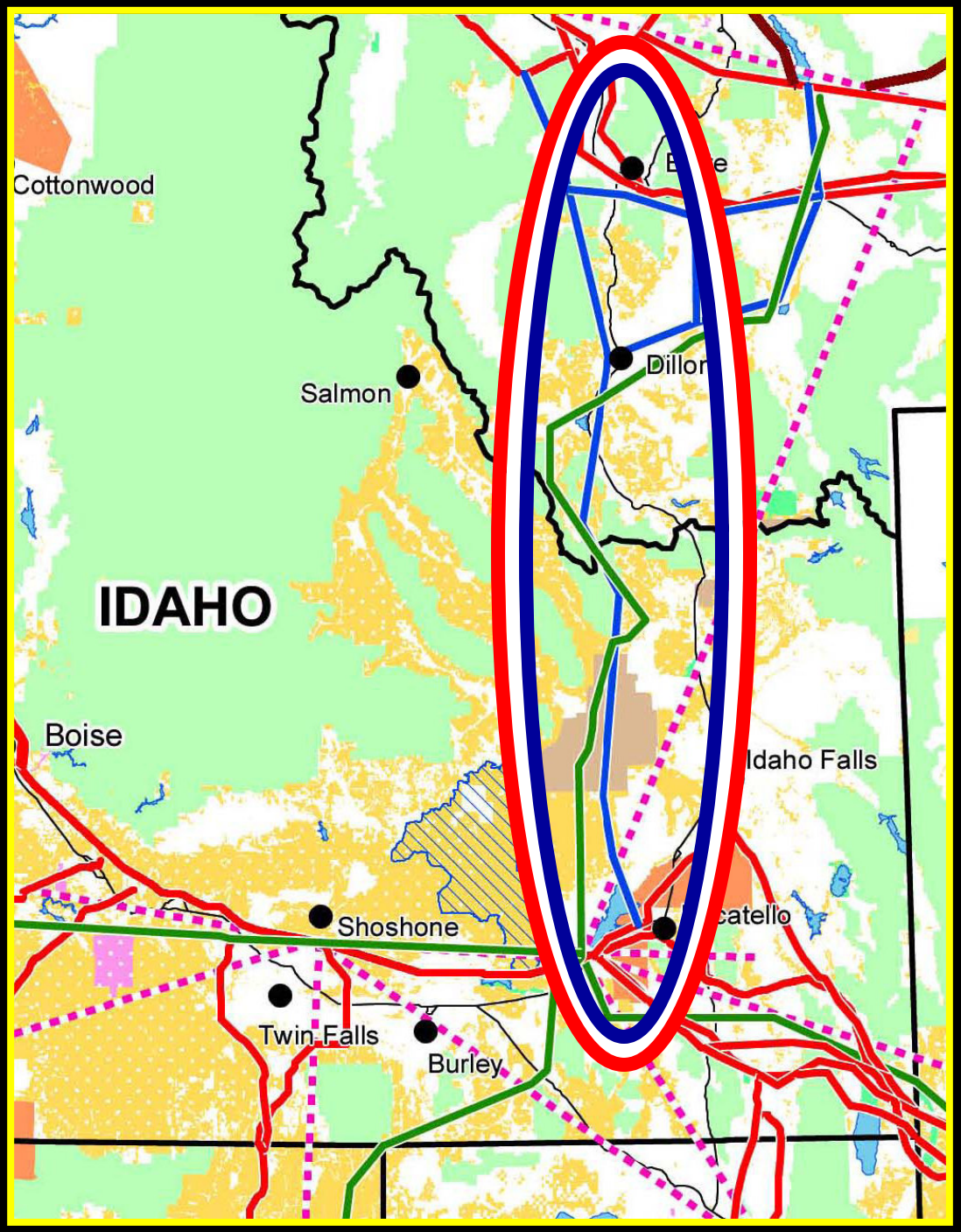
Path 18
Northwestern Energy

Path 18

SW MT to Idaho

As much as 1000+ MW Capacity

Up to $185 Million cost



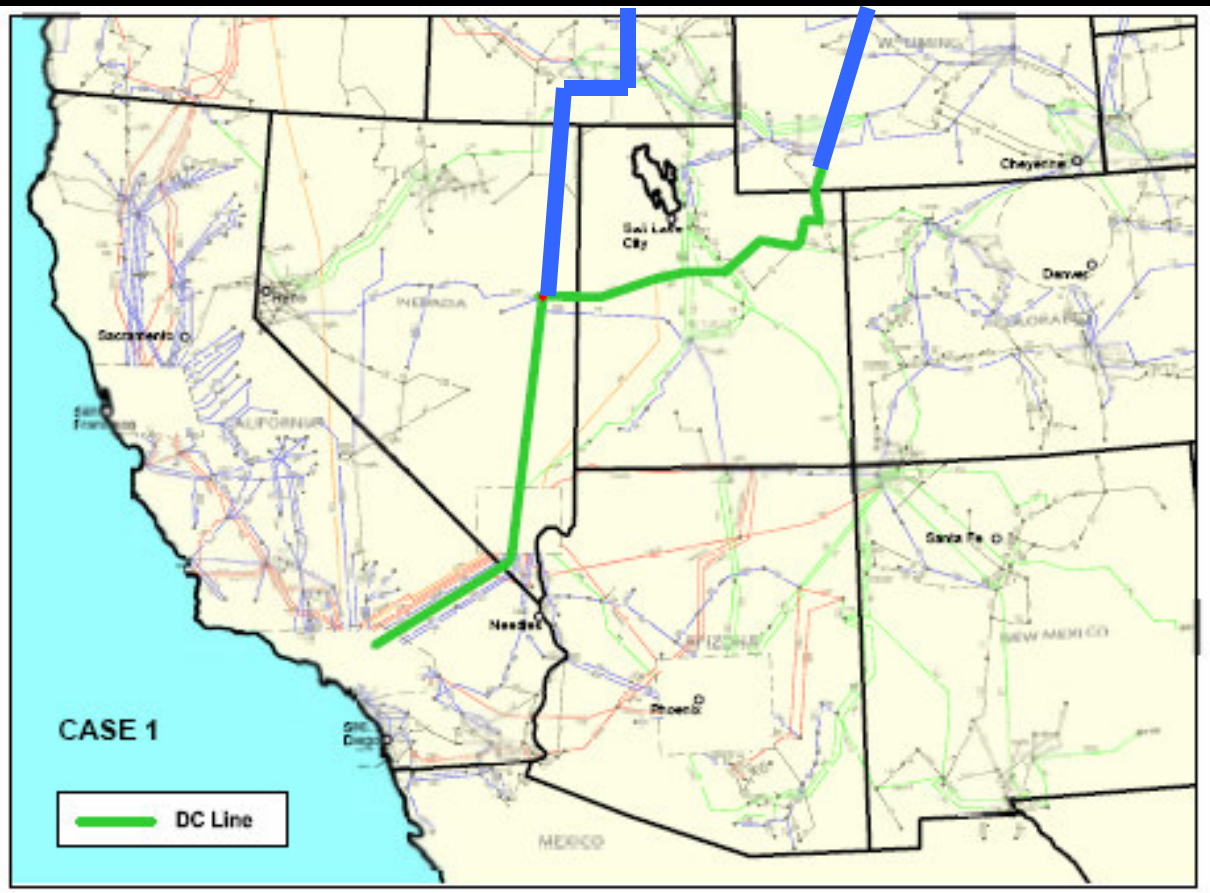
Potential Electric Transmission Projects for Montana

Montana Add-on Proposed Frontier Transmission Line

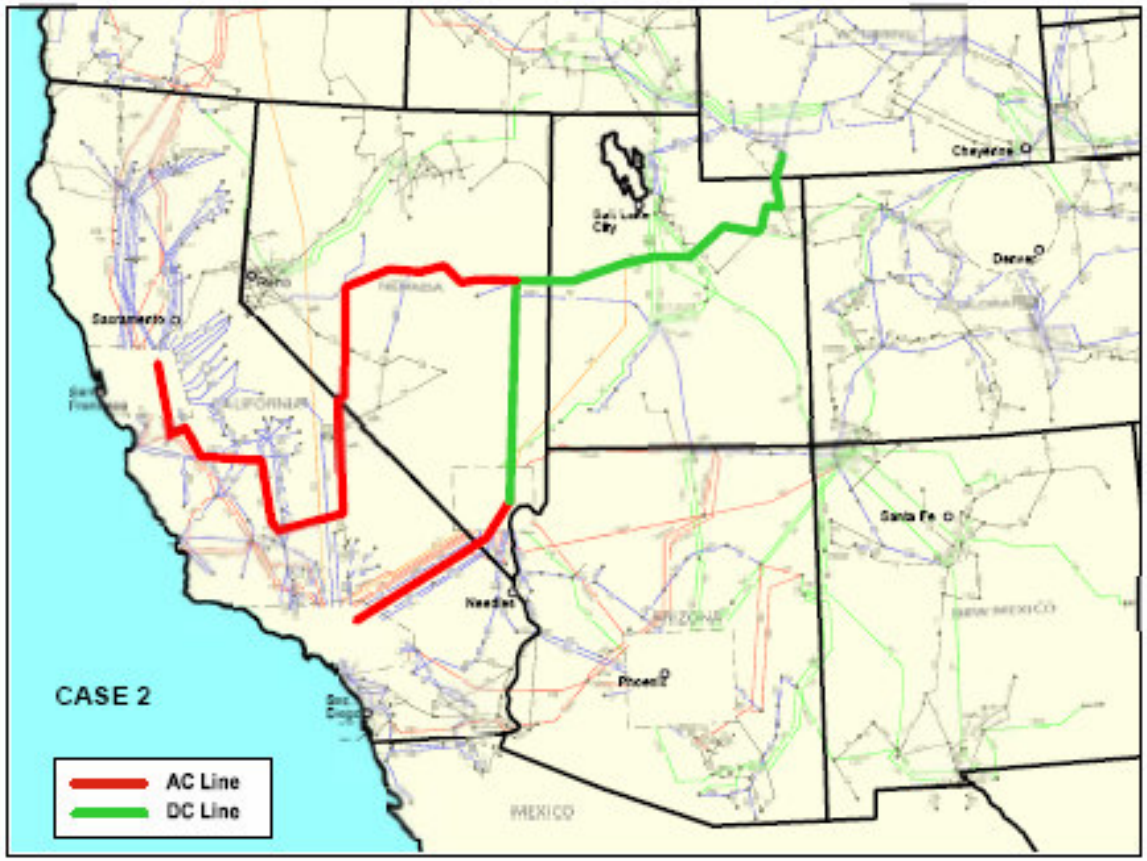
Frontier Line – Concept 1

Frontier Line – Concept 1

Blue is Possible Montana Interconnect (added)



Frontier Line – Concept 2



Frontier Line – Concept 2

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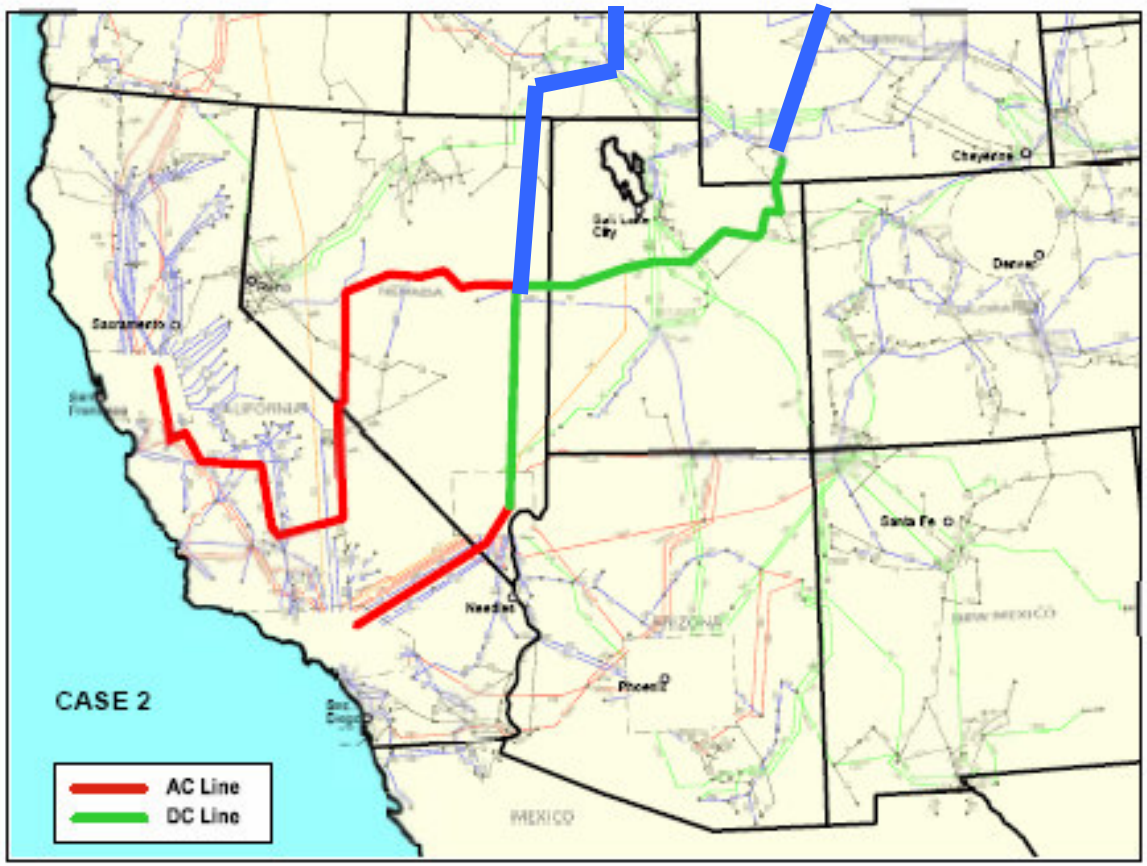
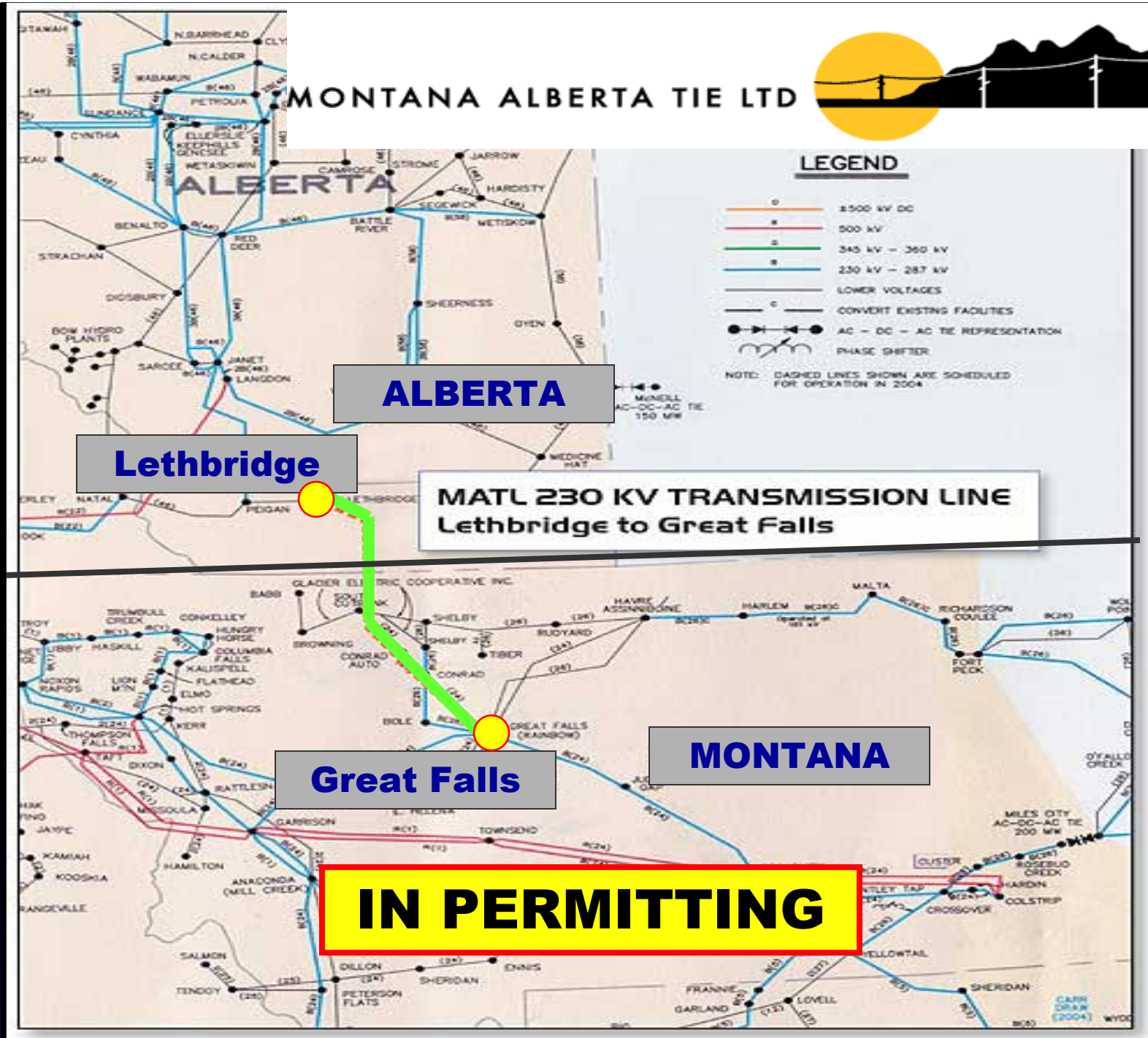


Potential Electric Transmission Projects for Montana

Montana Alberta Tie Line (MATL)

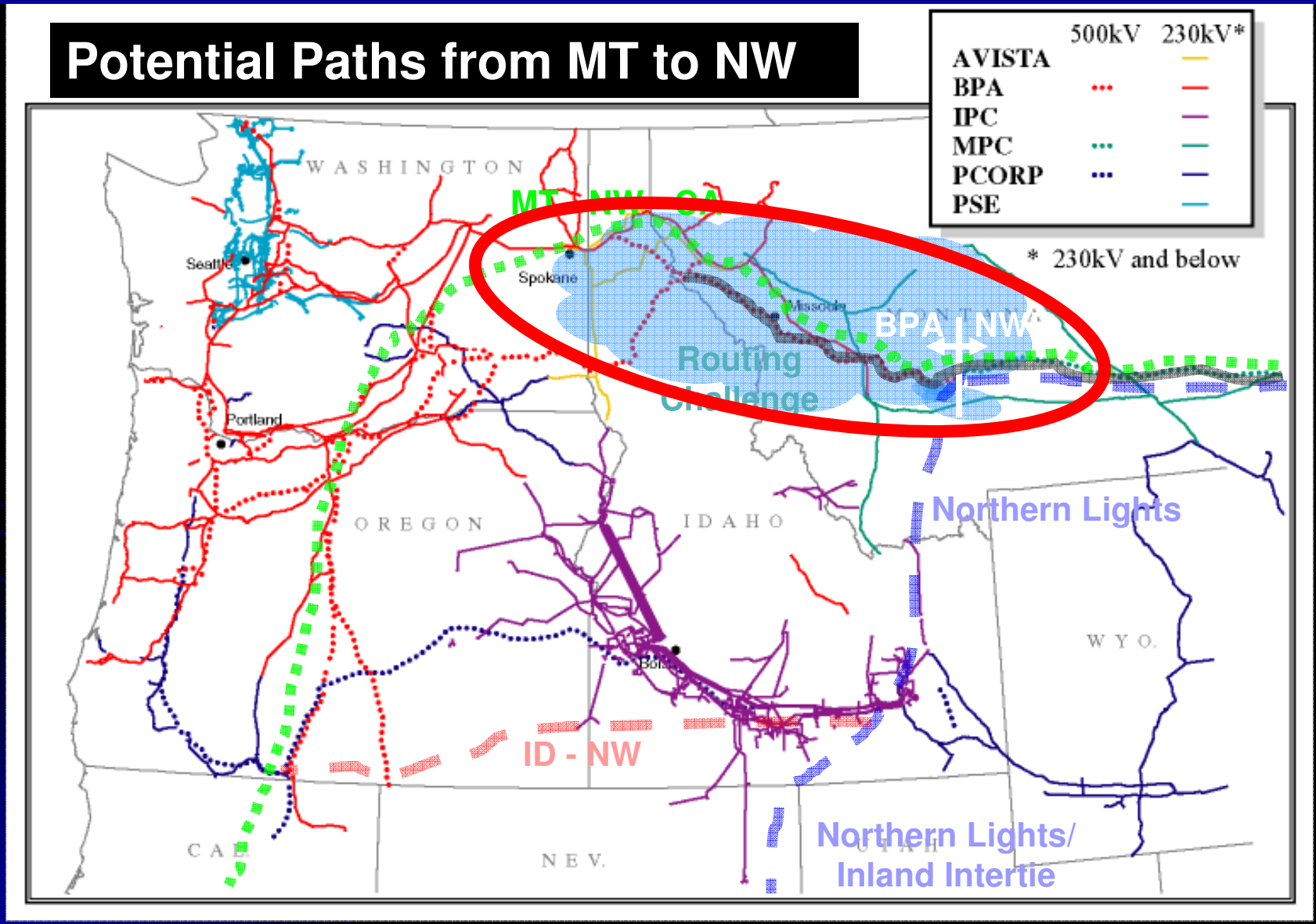
MONTANA ALBERTA TIE LTD



Potential Electric Transmission Projects for Montana

Possible BPA Upgrades to Pacific NW

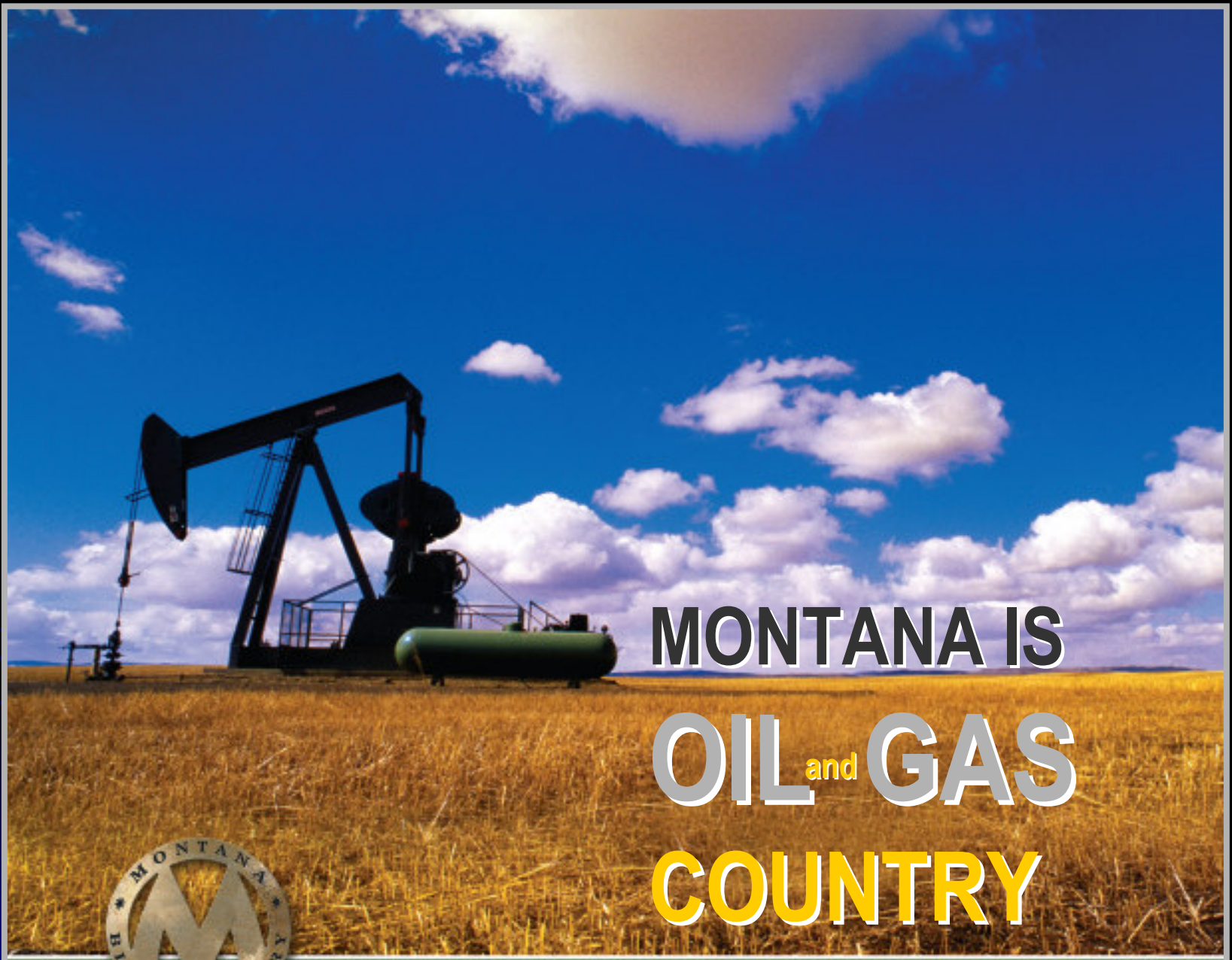
Increasing Transfers from MT to NW



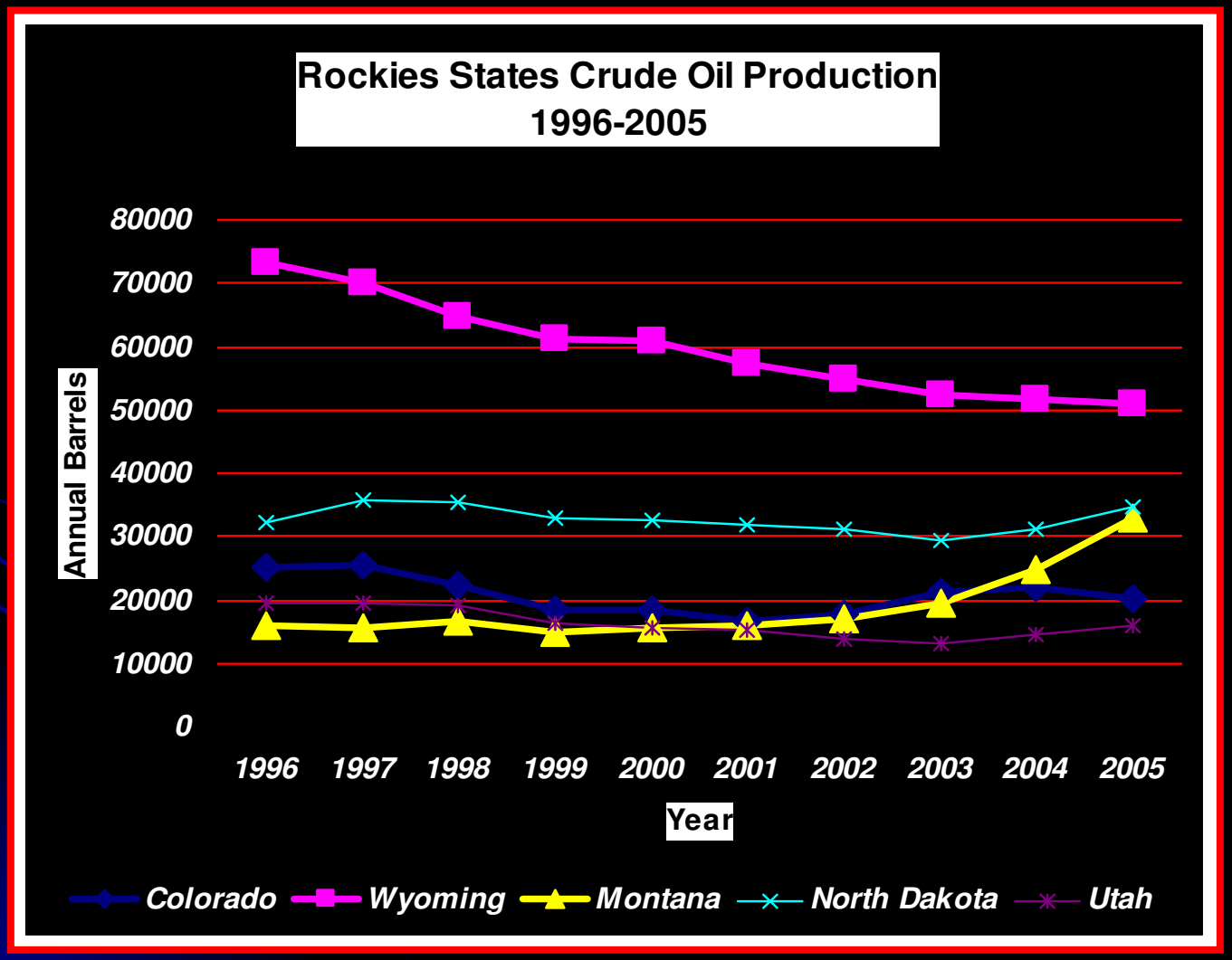
BPA Increasing Transfers from MT to NW

- **Potential for as much as 750 MW of additional capacity from Colstrip area to Puget Sound area with no 500-kV line construction.**
- **Cost approximately $375 - $450 million**

NOTE: This information is based on high level studies and has not been confirmed by detailed studies


MONTANA IS
OIL and GAS
COUNTRY
MONTANA
BIG SKY COUNTRY
BOOSTING MONTANA'S STAPLE ENERGY INDUSTRY !

Montana & North Dakota are only states increasing oil production



Growth in Montana Oil Production

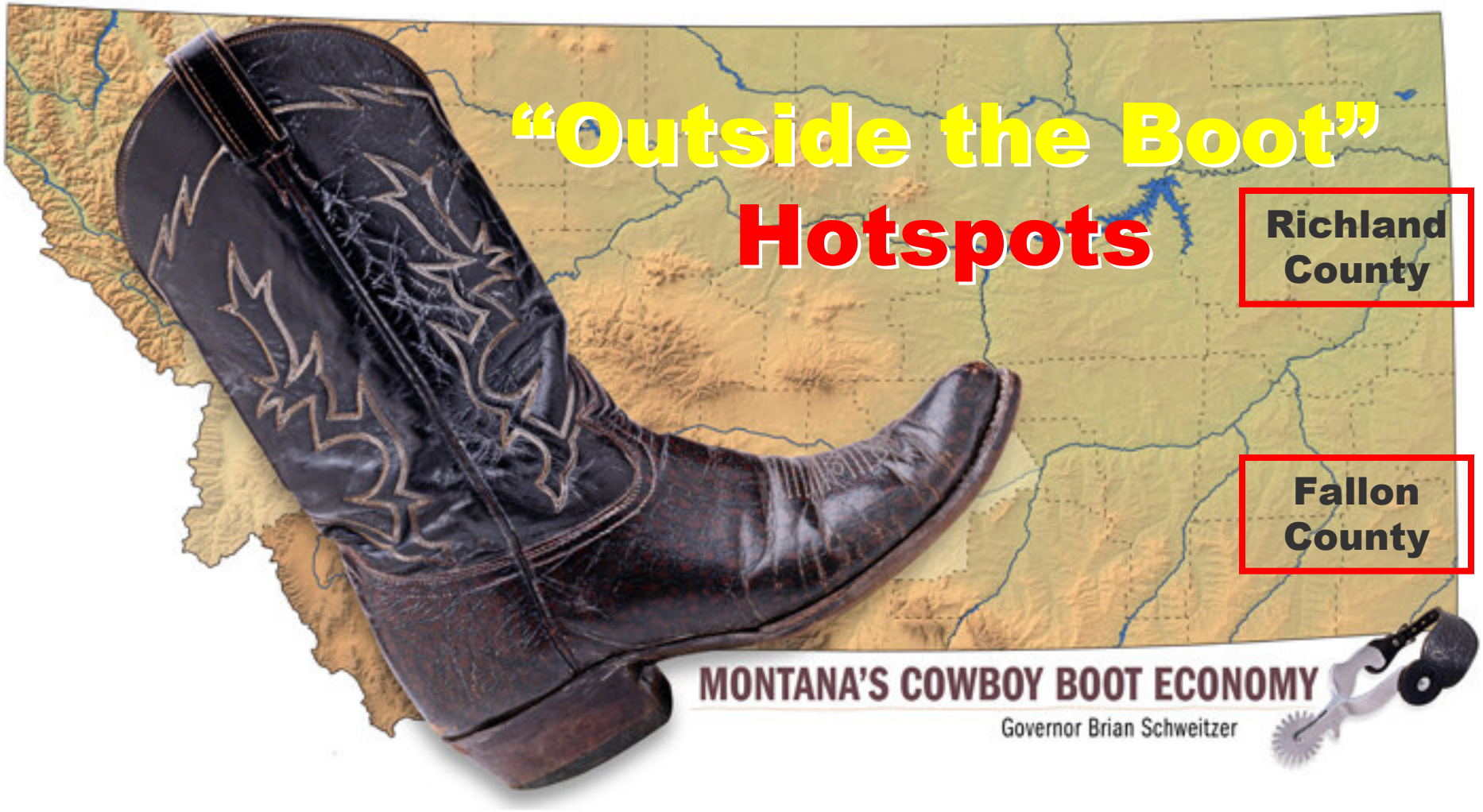
Oil Production in Montana		
Year	Barrels/Year	Growth
2000	15,800,000	
2001	16,300,000	3.2%
2002	17,000,000	4.3%
2003	19,400,000	14.1%
2004	24,700,000	27.3%
2006	32,829,373	32.9%

Alberta Oil Production = 700 Million bbls/yr

Over 20 x Montana's Production

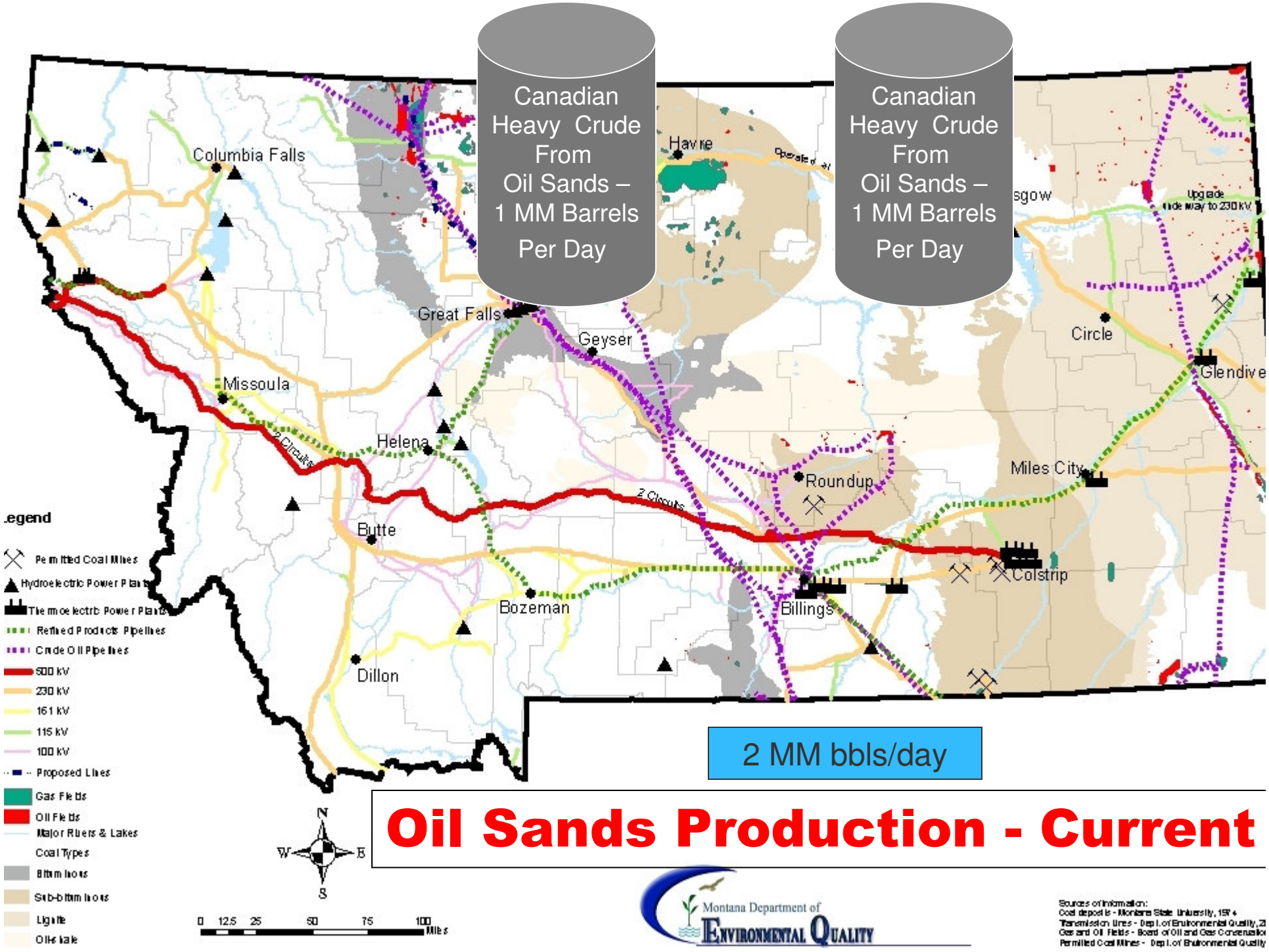
Top Ten Montana Oil Counties

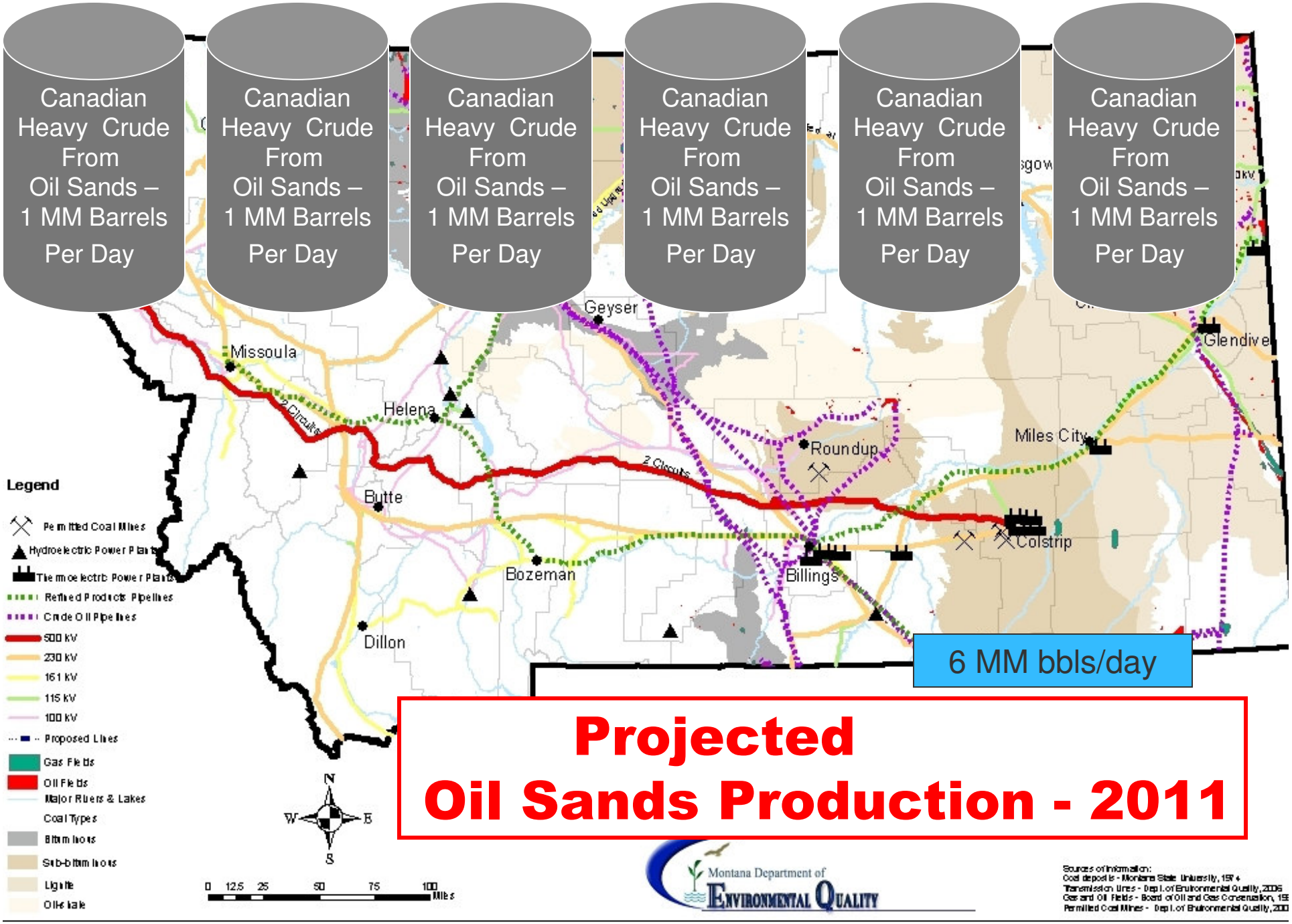
Barrels Produced - 2005			
1	Richland	18,143,140	78%
2	Fallon	7,547,096	
3	Sheridan	1,466,996	
4	Roosevelt	1,401,396	
5	Wibaux	824,000	
6	Dawson	601,609	
7	Glacier	468,246	
8	Carbon	468,242	
9	Toole	308,588	
10	Blaine	206,938	
State Total		32,829,373	


"Outside the Boot"
Hotspots
Richland County
Fallon County
MONTANA'S COWBOY BOOT ECONOMY
Governor Brian Schweitzer

Potential Growth in the Bakken

- Bakken in Montana and North Dakota
- USGS Study Report - 1999
- Estimated Bakken formation at up to 400 billion barrels
- Arctic Refuge = 16 billion barrels
- Push for completion of study


Canadian Heavy Crude From Oil Sands – 1 MM Barrels Per Day
Canadian Heavy Crude From Oil Sands – 1 MM Barrels Per Day
Columbia Falls
Havre
Great Falls
Geyser
Missoula
Helena
Butte
Bozeman
Dillon
Roundup
Billings
Colstrip
Miles City
Circle
Glendive
2 Circuits
2 Circuits
Upgrade
Legend
Permitted Coal Mines
Hydroelectric Power Plants
Thermoelectric Power Plants
Refined Products Pipelines
Crude Oil Pipelines
500 kV
230 kV
161 kV
115 kV
100 kV
Proposed Lines
Gas Fields
Oil Fields
Major Rivers & Lakes
Coal Types
Bituminous
Sub-bituminous
Lignite
Oil shale
N
W
E
S
0 12.5 25 50 75 100 Miles
2 MM bbls/day
Oil Sands Production - Current
Montana Department of Environmental Quality
Sources of Information:
Coal deposits - Montana State University, 1974
Transmission Lines - Dept. of Environmental Quality, 2
Gas and Oil Fields - Board of Oil and Gas Conservatio
Permitted Coal Mines - Dept. of Environmental Quality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Geyser
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Bozeman
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Roundup
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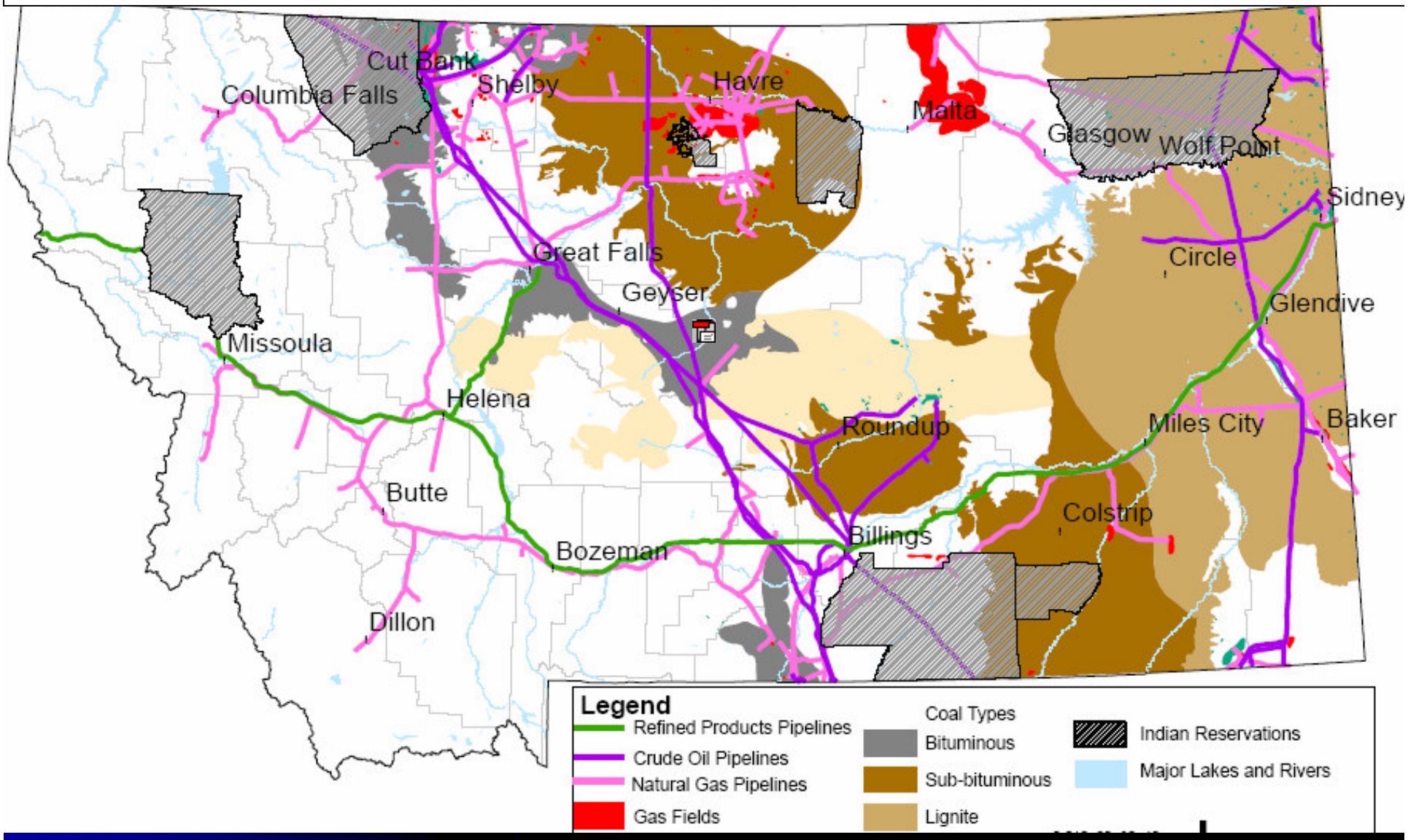
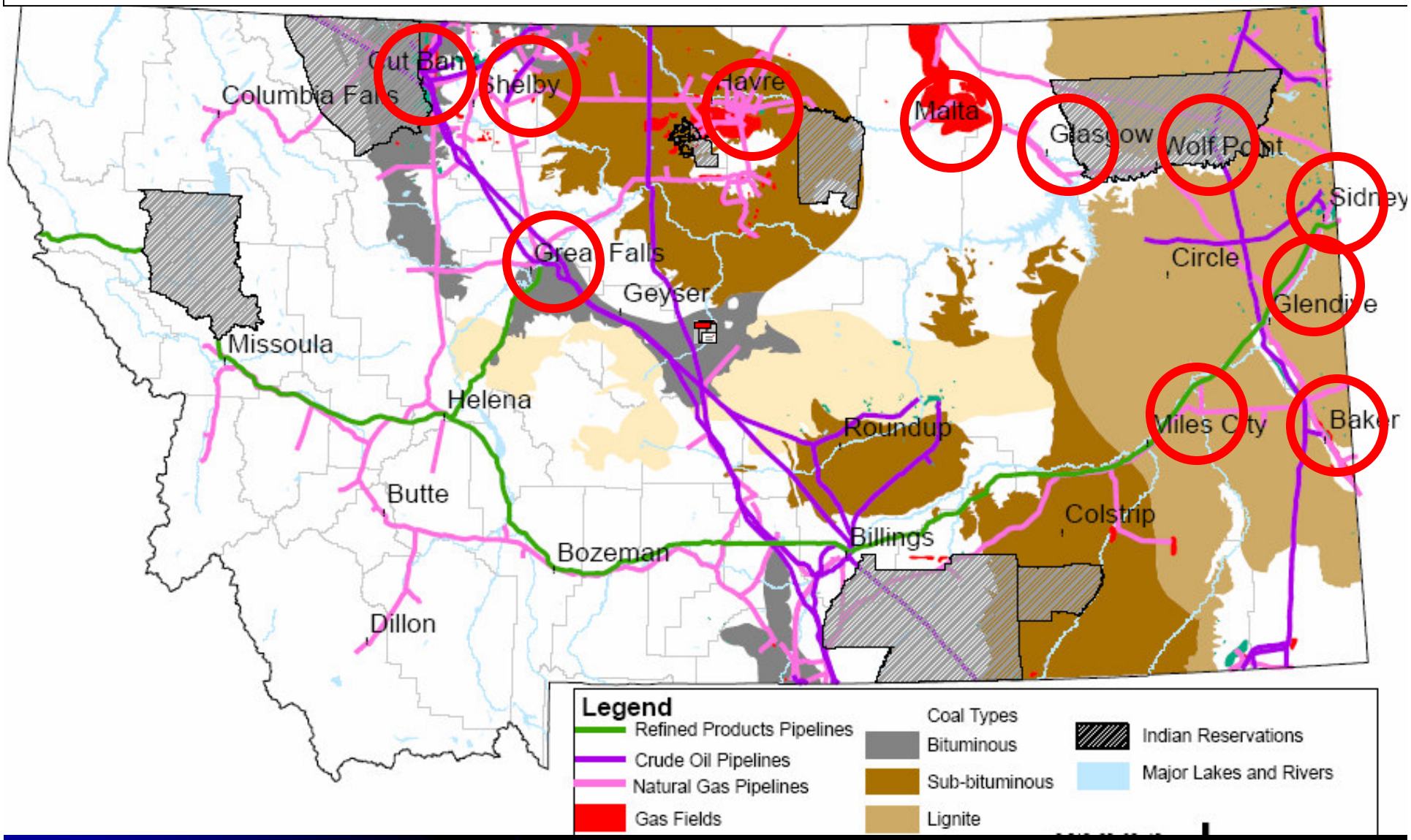
2 Circuits
2 Circuits
Legend
Permitted Coal Mines
Hydroelectric Power Plants
Thermoelectric Power Plants
Refined Products Pipelines
Crude Oil Pipelines
500 kV
230 kV
161 kV
115 kV
100 kV
Proposed Lines
Gas Fields
Oil Fields
Major Rivers & Lakes
Coal Types
Bituminous
Sub-bituminous
Lignite
Oil Shale
N
W
E
S
0 12.5 25 50 75 100 Miles
6 MM bbls/day
Projected
Oil Sands Production - 2011
Montana Department of
Environmental Quality
Sources of Information:
Coal deposits - Montana State University, 1974
Transmission Lines - Dept. of Environmental Quality, 2006
Gas and Oil Fields - Board of Oil and Gas Conservation, 19
Permitted Coal Mines - Dept. of Environmental Quality, 200

Oil & Gas Pipeline Map



Possible Refinery Sites



Potential Oil Refining Numbers

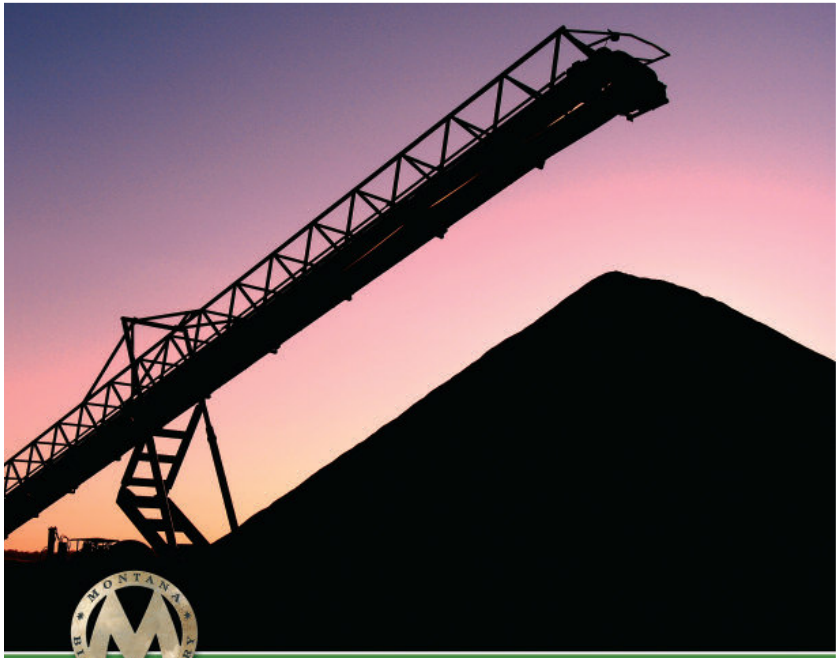
New barrels/day of heavy Canadian crude anticipated:	4,000,000
Barrels per day that could be refined in MT:	500,000
Percent of new crude:	12.5%
Potential number of refineries for Canadian crude:	7
Barrels/day per refinery:	71,000
Current largest Montana refinery (Conoco) in bbls/day:	60,000
Employees at Conoco refinery:	250
Estimated employees at each new prospective refinery:	275

Pipeline Issues

- Current Crude Bottlenecks
- Additional Oil Sands Crude
- New Oil Sands Refinery Product

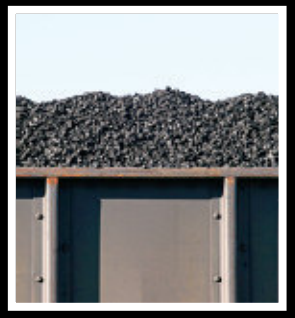
WIND

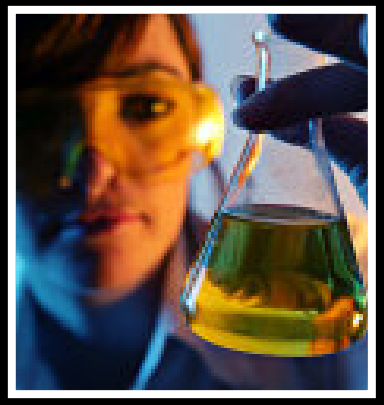
BIO-FUELS

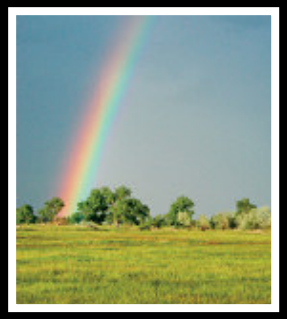


COAL

OIL & GAS







Every day ...

Governor Schweitzer

is working to make economic growth through energy development happen!

Governor's Office of Economic Development

Contact Information

Governor's Office of Economic Development

PO Box 200801
Helena, Montana 59620-0801

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1-406-444-5634

www.business.mt.gov